

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

RONALD A. KATZ TECHNOLOGY)
LICENSING, L.P.,)
)
Plaintiff,)
)
v.) C.A. No. _____
)
TIME WARNER CABLE INC.; TIME WARNER)
NY CABLE LLC; TIME WARNER)
ENTERTAINMENT COMPANY, L.P.; AOL LLC;)
COMPUSENSE INTERACTIVE SERVICES, INC.;)
NETSCAPE COMMUNICATIONS)
CORPORATION; UNITED STATES CELLULAR)
CORPORATION; TDS TELECOMMUNICATIONS)
CORPORATION; TDS METROCOM, LLC;)
CABLEVISION SYSTEMS CORPORATION; CSC)
HOLDINGS, INC.; CABLEVISION SYSTEMS)
NEW YORK CITY CORPORATION;)
CABLEVISION OF BROOKHAVEN, INC.;)
CABLEVISION OF CONNECTICUT)
CORPORATION; CABLEVISION OF HUDSON)
COUNTY, INC.; CABLEVISION OF LITCHFIELD,)
INC.; CABLEVISION OF MONMOUTH, INC.;)
CABLEVISION OF NEW JERSEY, INC.;)
CABLEVISION OF OAKLAND, LLC;)
CABLEVISION OF ROCKLAND/RAMAPO, LLC;)
CHARTER COMMUNICATIONS, INC.;)
CHARTER COMMUNICATIONS HOLDING)
COMPANY, LLC; CHARTER)
COMMUNICATIONS OPERATING, LLC;)
CHARTER COMMUNICATIONS)
ENTERTAINMENT I, LLC; QWEST)
COMMUNICATIONS INTERNATIONAL INC.;)
QWEST WIRELESS, L.L.C.; QWEST)
COMMUNICATIONS CORPORATION; QWEST)
LD CORP.; QWEST BROADBAND SERVICES,)
INC.; QWEST ENTERPRISE AMERICA, INC.,)
)
Defendants.)
)

DEMAND FOR JURY TRIAL

**APPENDIX OF PATENTS TO PLAINTIFF RONALD A. KATZ
TECHNOLOGY LICENSING, L.P.'S COMPLAINT FOR PATENT INFRINGEMENT**

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535238

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PART 1 OF 2

(12) United States Patent
Katz(10) Patent No.: US 6,349,134 B1
(45) Date of Patent: *Feb. 19, 2002

(54) TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM

(75) Inventor: Ronald A. Katz, Los Angeles, CA (US)

(73) Assignee: Ronald A. Katz Technology Licensing, L.P., Los Angeles, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 08/483,250

(22) Filed: Jun. 7, 1995

Related U.S. Application Data

(60) Division of application No. 07/335,923, filed on Apr. 10, 1989, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, application No. 08/483,250, filed on Jun. 7, 1995, which is a continuation-in-part of application No. 08/306,456, filed on Sep. 14, 1994, which is a continuation of application No. 08/058,452, filed on May 19, 1993, now Pat. No. 5,359,645, which is a continuation of application No. 07/680,879, filed on Apr. 5, 1991, now Pat. No. 5,224,153, which is a continuation-in-part of application No. 07/481,403, filed on Feb. 20, 1990, now Pat. No. 5,014,298, which is a continuation-in-part of application No. 07/312,792, filed on Feb. 21, 1989, now Pat. No. 5,073,929, which is a continuation-in-part of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned.

(51) Int. Cl.⁷ H04M 11/00

(52) U.S. Cl. 379/92.01; 379/93.13; 379/88.19; 379/88.18

(58) Field of Search 379/92, 91, 97, 379/94, 93, 95, 110, 89, 88, 113, 91.01, 91.02, 93.12, 93.13, 93.14, 93.02, 93.03, 93.26

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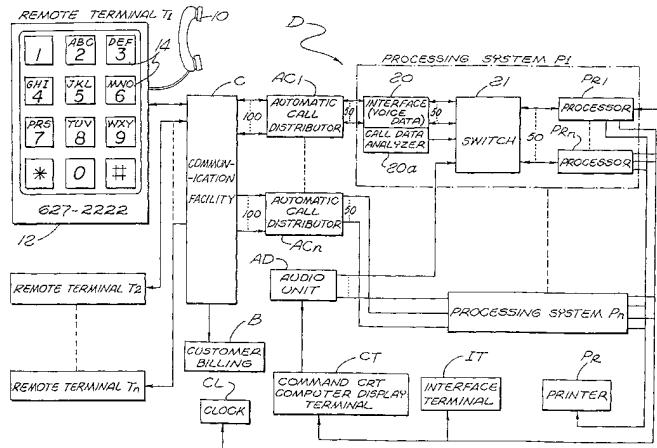
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Primary Examiner—Stella Woo

(57) ABSTRACT

A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

96 Claims, 6 Drawing Sheets



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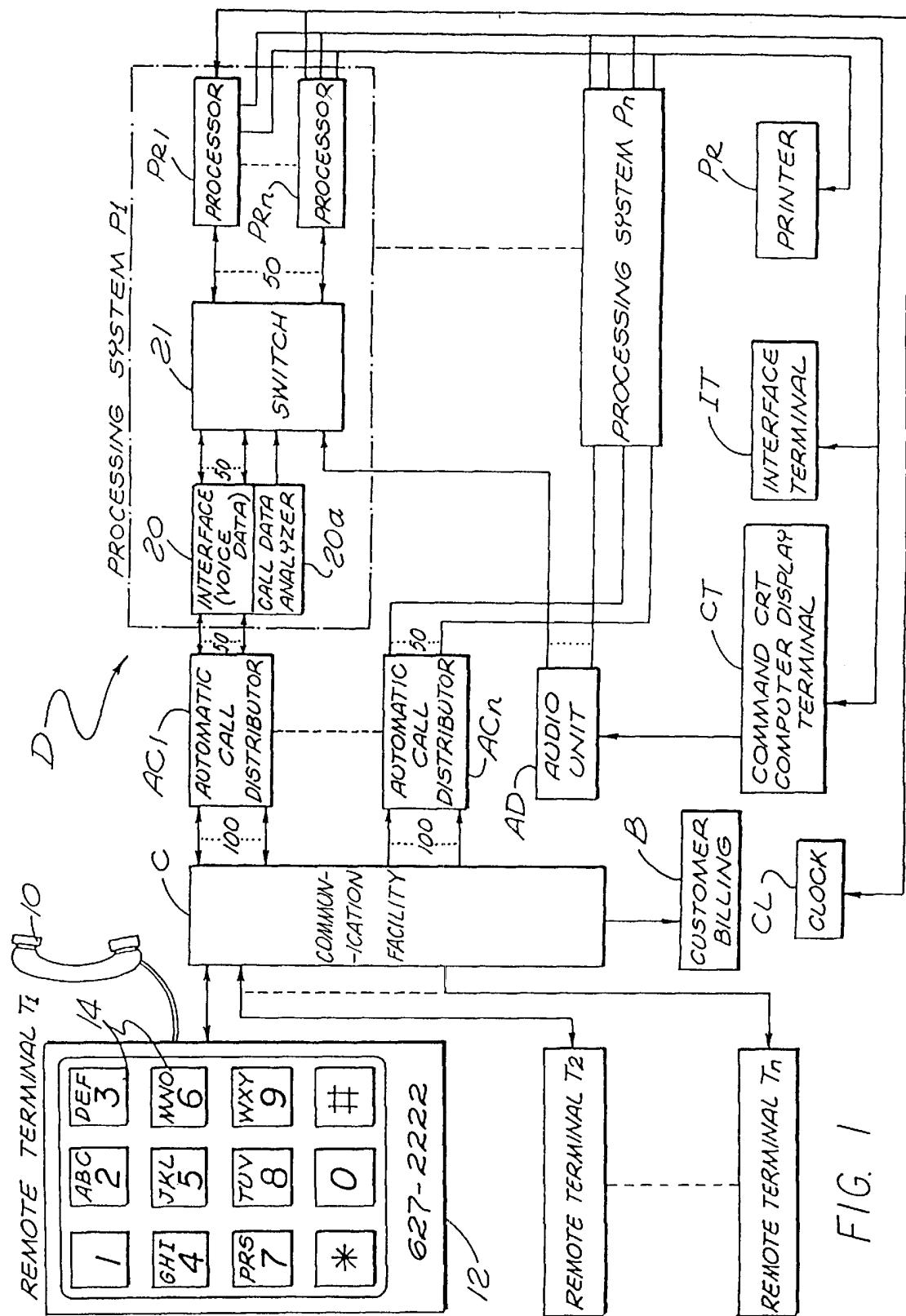


FIG. 1

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CALLER'S TELEPHONE NUMBER AND INITIALS 627-2222-53	DATA: AGE, WEIGHT----PULSE 47 176.....77		CALL RECORD SEQUENCE 4951 495/684	ASSIGNED DESIGNATION 6/73
	C1	C2		

FIG. 2

CARD TYPE 1	CARD # 132	CARD EXP. DATE 134	CUST. # 136	NAME ADDRESS DATA 138	ITEM 1	COLOR SIZE CODE 140	ACKNOWLEDGE DIGITS 142

FIG. 5

CALLER'S TELEPHONE NUMBER 201	USES/ MONTH 202	TIME 204	I.D. DATA 206	DESIGNATION 208	QUESTION ANSWERS 210

FIG. 7

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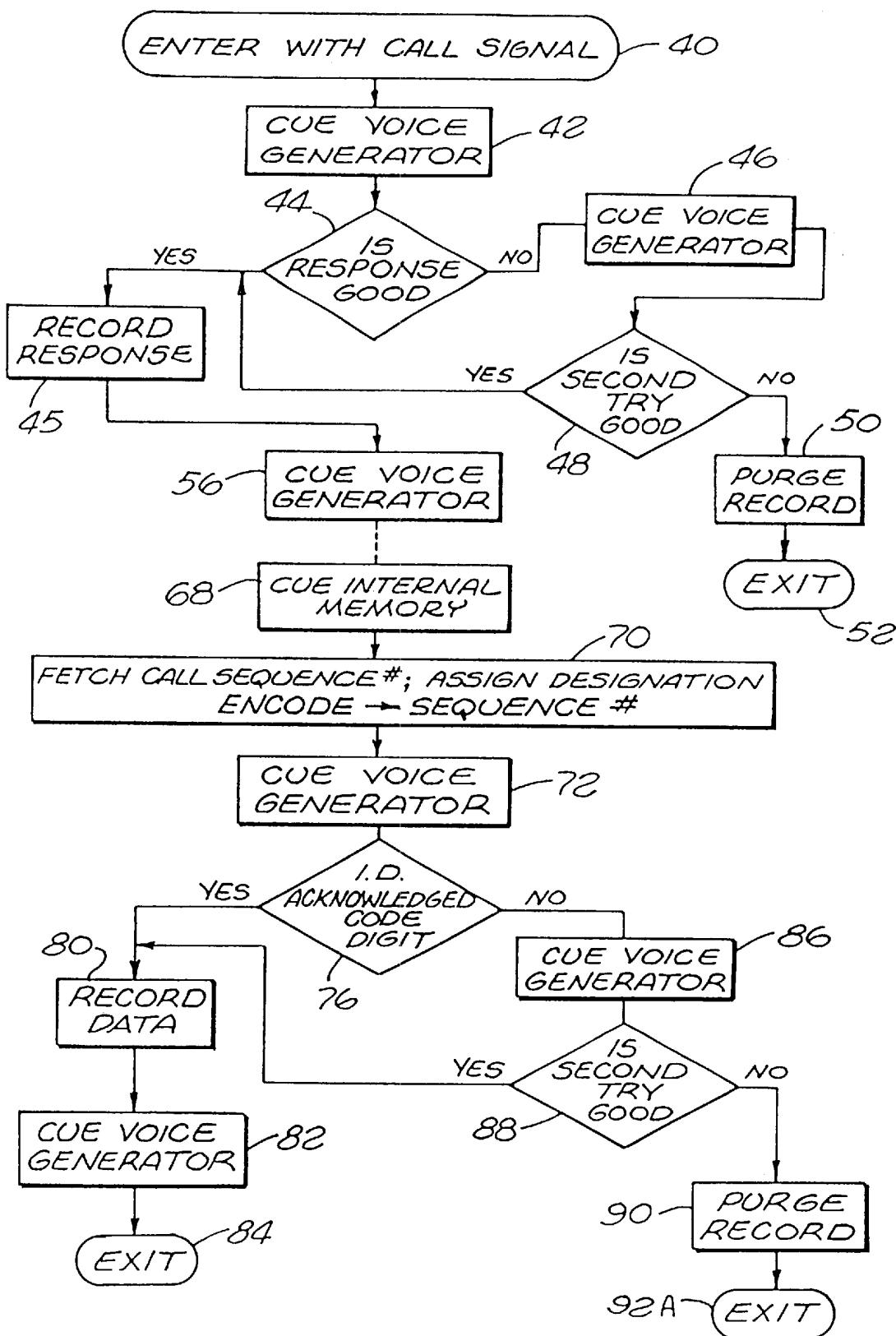


FIG. 3

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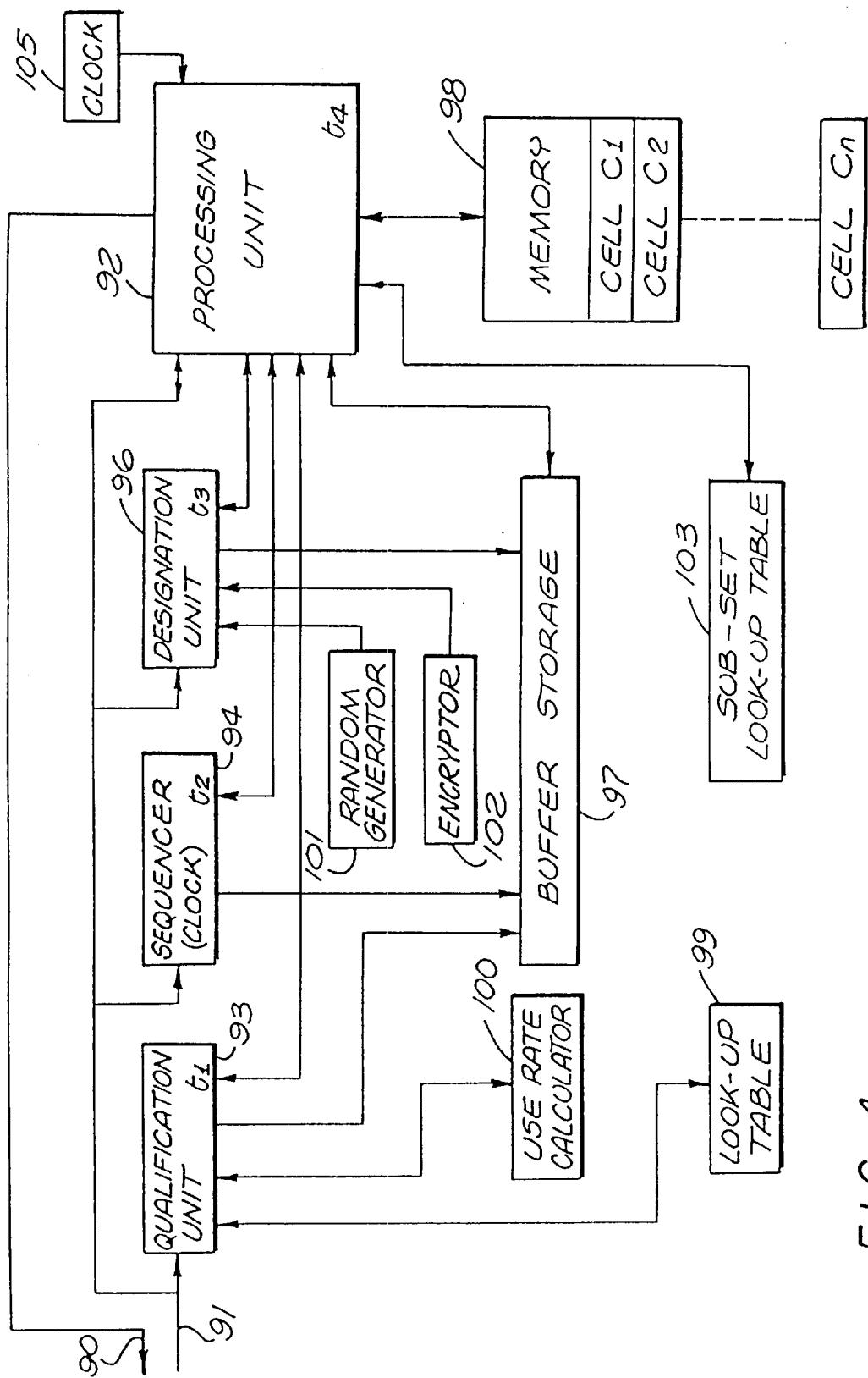


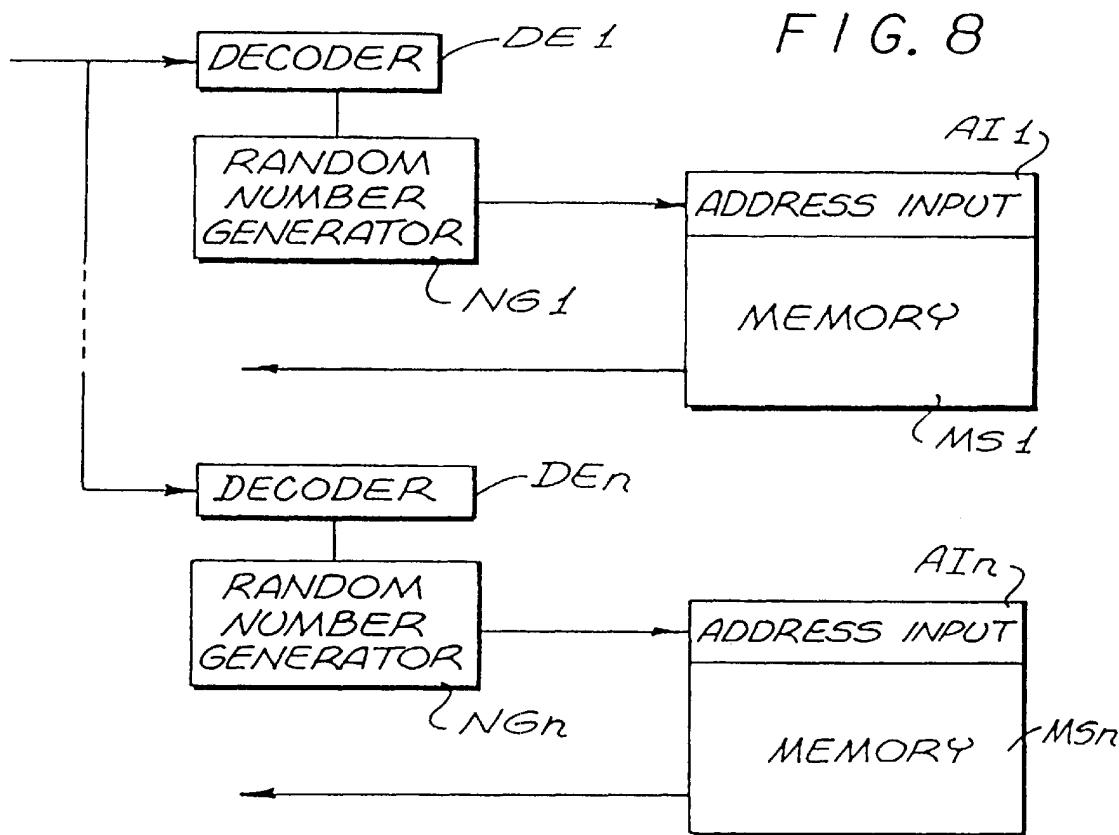
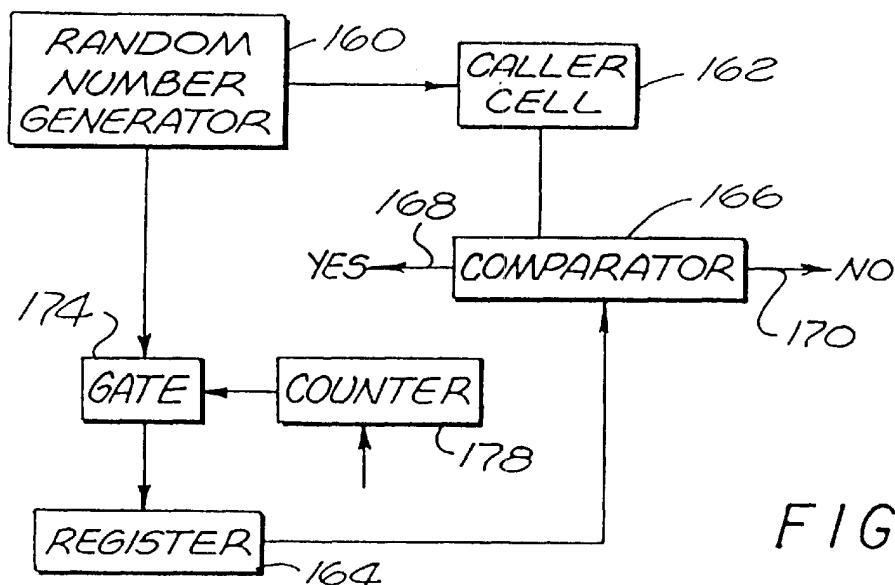
FIG. 4

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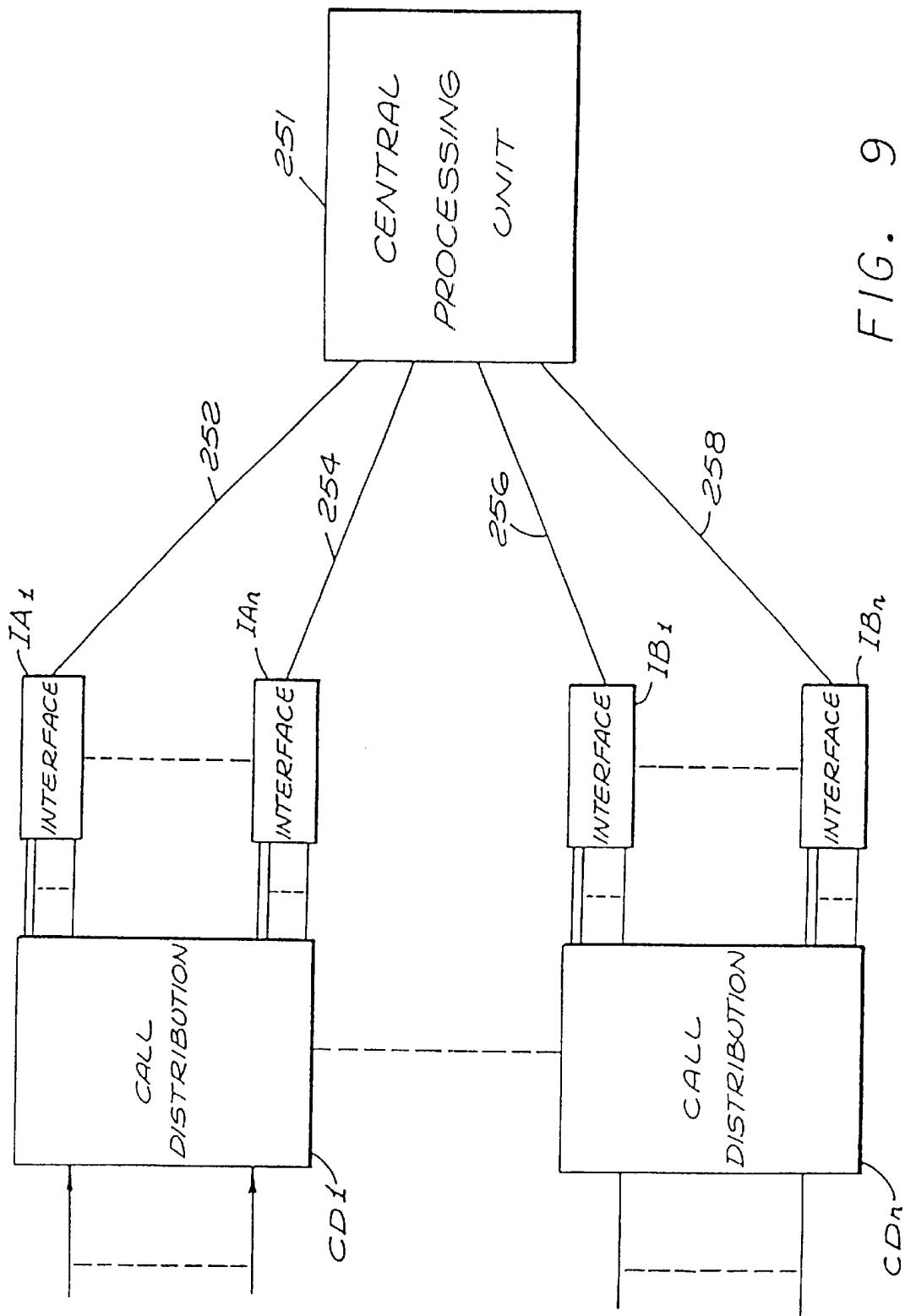


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TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM

This is a divisional application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic Interface Statistical Analysis System", which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility".

Also, this application is a continuation-in-part of application Ser. No. 08/306,456 filed Sep. 14, 1994, and entitled "Voice-Data Telephonic Interface Control System", which is a continuation of application Ser. No. 08/058,452 filed May 7, 1993, and entitled "Voice-Data Telephonic Interface Control System", now U.S. Pat. No. 5,359,645, which is a continuation of application Ser. No. 07/680,879 filed Apr. 6, 1991, entitled "Voice-Data Telephonic Interface Control System", now U.S. Pat. No. 5,224,153, which is a continuation-in-part of application Ser. No. 07/481,403, filed Feb. 20, 1990, entitled "Voice-Data Telephonic Interface Control System", now U.S. Pat. No. 5,014,298, which is a continuation-in-part of application Ser. No. 07/312,792, filed Feb. 21, 1989, entitled "Voice-Data Telephonic Interface Control System", now U.S. Pat. No. 5,073,929, which is a continuation-in-part of application Ser. No. 07/194,258, filed May 16, 1988, entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244, filed Feb. 24, 1987, entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299, filed Jul. 10, 1985, now abandoned.

The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. §120.

BACKGROUND AND SUMMARY OF THE INVENTION

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a

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communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a telephone system.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

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FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of the connections between the CPU and remote stations.

DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

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Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-TN take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9," two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-N through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

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Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility c (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface 20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple-function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the caller's individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data

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(formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct local communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infirmity. The exemplary operation might involve a geographical area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals T1-Tn to contact the central station D through the communication facility C and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor PR and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal T1 (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece 10 and in accordance with conventional techniques actuates the push buttons 14 to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility C with a designated function unit in the central station D. Receiving the call signal, the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface 20 and the switch 21 to attain connection with the specific processor, e.g. the processor PR1 formatting the health-related program. Accordingly, the processor PR1 cooperates with the interface 20 to cue the interface 20 to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block 40 which is accordingly

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followed by a "cue voice generator" command block **42**. If the ANI equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block **48** (FIG. 3). Specifically, block **48** poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block **50** and the call is terminated as indicated by the block **52**. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block **45**. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section **53**, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block **48** (FIG. 3), the response is recorded at that stage. In either case, exiting from the block **54** (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block **56**.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface **20** (FIG. 1) as represented by the block **56** produces a request for further information from the caller with further identification data and answer data. For example, the voice

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generator might request information by stating: "Please use the telephone buttons to indicate initials of your name."

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks **42** through **54**. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section **53** of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section **58** in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections **62**, **64** and **66**. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

Adding without propagated carries:

4951
2222
<hr/>
6173

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section **62** while the acknowledge digits are 6173 as registered in the section **66**. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section **64**, the acknowledge code or digits, e.g. 6173, being registered in the section **66**. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block **68** (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block **70** (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface **20**, as indicated by the block **72** (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface **20** (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment

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digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer 22 to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors P1-Pn can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applica-

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tions. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to 20 a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating 25 formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along 30 with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the 40 qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, 45 consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T1 (FIG. 1) dials a 50 specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213)627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal T1. As a result, the communication facility C couples the terminal T1 through the automatic call distributor AC1, the interface 20 and the switch 21 to a select processor PR1 identified and programmed for a mail-order operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P1 through 55 well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface 20 might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by 60 computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the

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communication, he may accomplish it simply by pushing the asterisk button (*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer may be asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface 20 might actuate the terminal T1 to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . .".

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card number and the expiration date of the card. That data is stored in the register 104, specifically in the blocks 132 and 134 as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block 136 of the block format register 104. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal IT (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register 104 along with his credit card number and expiration date. From that location, the data is checked by the qualification unit 93 (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated t1, the qualification unit 93 operating under control of the processing unit 92.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit 93.

With the successful completion and verification of the preliminary data in the block format register 104, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer 94 may log the time during a period t2 if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface 20 prompts the caller through a series of exchanges

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that load the storage block format register 104 with a merchandise order. Thus, as purchase items are confirmed, the register 104 is loaded as exemplified by the blocks 140 and 142. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit 96 (FIG. 4) during the interval t3 to develop and announce the acknowledgement digits as stored in the block 144 (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer 97 (FIG. 4) to a select memory cell C1-Cn.

During the next interval t4, the processing unit 92 (FIG. 4) isolates data of the cells C1-Cn to facilitate the mail-order process. In that regard, the processor 92 may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected, during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1 coupling would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit 93 then

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functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval t2 and the operation of the sequencer 94 may be bypassed. Rather, the designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator 101 with or without the encryptor 102 may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows:

Telephone No.—Birth Year—Designation—Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identifi-

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cation may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

As another operating process format in accordance with 25 the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary 30 format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1-Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card 35 number or other identification.

Generally, it is contemplated that callers are coupled into 40 the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer 45 conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Essentially, the auctioneer is given an abstract or summary of the relative 50 bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is 55 televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1-Tn may dial the auction number and obtain access to the processing systems P1-Pn. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then 60 be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4)

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assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility C and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars asking callers to so bid by entering an asterisk (*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of

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the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93 and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are

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interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote-terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface 20. Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PR1 containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their

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use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no such indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of driver's license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically, identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller; Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the e questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller

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should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1–MSn is served by an address input AI1–AIn respectively. Similarly, the address inputs AI1–AIn are instructed by random number generators NG1–NGn, in turn actuated by decoders DE1–DEN. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface 20 FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input AI1 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEN (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be

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informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1–Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1–Pn as explained above. Note that the processor (or the interface 20 may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualification unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calcu-

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lator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch 21 (FIG. 1) for communication to the caller.

With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IAn and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

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What is claimed is:

1. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS), said controlled data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving calls from said individual callers at said remote terminals and for receiving said called number identification data signals (DNIS) automatically provided by the telephone communication facility;

a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) accomplishing a selected one of said various operating formats identified by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, 3) receiving at least certain identification data relating to said individual callers and testing the at least certain identification data to control access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, and 4) also receiving other data provided by said individual callers in response to said one or more cues, at least certain other data provided by said individual caller via the digital input structure; and

a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to said individual callers including at least certain of said other data, said central processor utilizing at least certain of said identification data to address stored data on said individual callers and updating at least certain stored data in said storage structure based on said identification data and at least certain of said other data.

2. A controlled data system according to claim 1, further comprising:

a live operator station associated with at least two of said plurality of interface units including voice generator capability, which is prompted with data relating to said called number identification data signals (DNIS).

3. A controlled data system according to claim 2, wherein said at least certain of said identification data and said at least certain other data provided by said individual callers by utilizing said digital input structure is displayed at said live operator station.

4. A controlled data system according to claim 1, wherein a live operator at a live operator station can enter data for said individual callers.

5. A controlled data system according to claim 1, wherein at least certain of said stored data is utilized for subsequent processing.

6. A controlled data system according to claim 1, wherein said selected one of said various operating formats imposes a limit on use for at least certain individual callers.

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7. A controlled data system according to claim 6, wherein said limit on use limits said individual callers to a limited number of uses.

8. A controlled data system according to claim 6, wherein said limit on use is based upon scoring transactions with reference to time.

9. A controlled data system according to claim 1, wherein said certain other data stored in said storage structure includes voice and digital data, which are utilized for subsequent processing.

10. A controlled data system according to claim 1, wherein said central processor includes analysis structure for comparing at least said certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

11. A controlled data system according to claim 10, wherein said analysis structure utilizes comparative processing of said certain other data provided by said individual callers to isolate a sub-subset of said individual callers.

12. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS) or calling number identification data signals or both, said control data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving: 1) calls from said individual callers at said remote terminals, 2) for receiving said called number identification data signals (DNIS) automatically provided by the telephone communication facility, and 3) for receiving said calling number identification data signals automatically provided by the telephone communication facility;

a central processor coupled to said plurality of interface units including voice generator capability, by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats identified by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, 3) receiving identification data relating to said individual callers and testing at least certain identification data to control access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, said calling number identification data signals automatically provided by said telephone communication facility serving as at least part of said identification data for said individual callers, and 4) also receiving other data provided by said individual callers at least in part via the digital input structure in response to said cues; and

a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to said individual callers including at least certain of said other data, said central processor utilizing at least certain of said identification data to address stored data for said individual callers and updating at

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least certain stored data in said storage structure based on said identification data and at least certain of said other data.

13. A controlled data system according to claim 12, further comprising:

a live operator station associated with at least two of said plurality of interface units including voice generator capability, which are prompted with data relating to said called number identification data signals (DNIS).

14. A controlled data system according to claim 13, wherein at least certain of said identification data and at least certain other data provided by said individual callers by utilizing said digital input structure is displayed at said live operator station.

15. A controlled data system according to claim 12, wherein a live operator at a live operator station can enter data for said individual callers and at least certain of said data entered by said live operator is stored in said storage structure to update at least certain of said stored data.

16. A controlled data system according to claim 12, wherein at least certain of said stored data is utilized for subsequent processing.

17. A controlled data system according to claim 12, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

18. A controlled data system according to claim 17, wherein said limit on use limits said individual callers to a limited number of uses.

19. A controlled data system according to claim 17, wherein said limit on use is based upon scoring transactions with reference to time.

20. A controlled data system according to claim 12, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for subsequent processing.

21. A controlled data system according to claim 12, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

22. A controlled data system according to claim 21, wherein said analysis structure utilizes comparative processing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

23. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS) and wherein said telephone communication facility controls allocation routing equipment to route calls from individual callers, said controlled data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving: 1) calls from said individual callers at said remote terminals routed by the allocation routing equipment to window callers to selected interface units of said plurality of interface units at a selected remote geographic location; and 2) for receiving said called number identification data signals (DNIS) automatically provided by the telephone communication facility;

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a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats based on identification of said selected format by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, 3) receiving at least identification data relating to said individual callers and testing at least certain identification data to control access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, and 4) also receiving other data provided by said individual callers, which at least in part is provided via the digital input structure in response to said cues; and

15 a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to individual callers including at least certain of said other data provided by said individual callers and said central processor utilizing at least certain of said identification data to address stored data, said central processor updating at least certain stored data relating to said individual callers in said storage structure based on said identification data and said other data.

20 24. A controlled data system according to claim 23, wherein said central processor receives calling number identification signals automatically provided by said telephone communication facility as at least part of said identification data for said individual callers, said calling number identification signals at least in part controlling access to at least certain of operations of said selected format.

25 25. A controlled data system according to claim 23, further comprising:

a live operator station associated with at least two of said plurality of interface units, which are prompted with data relating to said called number identification data signals (DNIS).

30 26. A controlled data system according to claim 25, wherein at least certain of said identification data and said other data provided by said individual callers by utilizing digital input structure is displayed at said live operator station.

35 27. A controlled data system according to claim 23, wherein a live operator at said live operator station can enter data for said individual callers.

28. A controlled data system according to claim 23, wherein at least certain of said stored data is utilized for subsequent processing.

29. A controlled data system according to claim 23, wherein said caller allocation routing data windows callers based upon either a time of day or the geographic location 55 of a caller originating a call.

30. A controlled data system according to claim 23, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

31. A controlled data system according to claim 30, wherein said limit on use limits said individual callers to a limited number of uses.

32. A controlled data system according to claim 30, wherein said limit on use is based upon scoring transactions with reference to time.

33. A controlled data system according to claim 23, wherein said other data stored by said storage structure

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includes voice and digital data, which are utilized for subsequent processing.

34. A controlled data system according to claim 23, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

35. A controlled data system according to claim 34, wherein said analysis structure utilizes comparative processing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

36. A controlled data system according to claim 23, further comprising:

analysis structure to analyze data provided by callers in conjunction with external data to isolate a subset of callers.

37. A controlled data system according to claim 23, wherein said subset of callers is isolated based upon caller ranking, which determines caller significance.

38. A controlled data system according to claim 37, wherein said caller significance is determined by the sequence of a call.

39. A controlled data system according to claim 23, wherein said plurality of interface units receive calling number identification data, which at least in part controls at least a portion of processing operations by said central processor.

40. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS), said control data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving calls from said individual callers at said remote terminals and said called number identification data signals (DNIS);

a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats based on identification of said selected format by said called number identification data signals (DNIS), 3) receiving at least certain identification data relating to said individual caller and 4) comparing said certain identification data with previously stored identification data relating to said individual callers for controlling access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, 5) also receiving other data provided by said individual callers which at least in part is provided via the digital input structure in response to said cues; and

55 a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to said individual callers including at least certain of said other data, said central processor utilizing at least certain of said identification data to address

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stored data and updating at least certain of said stored data in said storage structure based on said identification data and at least certain of said other data.

41. A controlled data system according to claim **40**, further comprising:

a live operator station associated with at least two of said plurality of interface units, which are prompted with data relating to said called number identification data signals (DNIS).

42. A controlled data system according to claim **41**, wherein at least certain of said identification data and said other data provided by said individual callers by utilizing said digital input structure and is displayed at said live operator station.

43. A controlled data system according to claim **40**, wherein a live operators at said live operator station can enter data for said individual callers and at least certain of said data entered by said live operator is stored in said storage structure to update certain of said stored data addressed by said identification data.

44. A controlled data system according to claim **40**, wherein at least certain of said stored data is utilized for subsequent processing.

45. A controlled data system according to claim **40**, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

46. A controlled data system according to claim **45**, wherein said limit on use limits said individual callers to a limited dollar amount.

47. A controlled data system according to claim **45**, wherein said limit on use limits said individual callers to a limited number of uses.

48. A controlled data system according to claim **45**, wherein said limit on use is based upon scoring transactions with reference to time.

49. A controlled data system according to claim **40**, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for subsequent processing.

50. A controlled data system according to claim **40**, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

51. A controlled data system according to claim **50**, wherein said analysis structure utilizes comparative processing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

52. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS) and the telephone communication facility controls allocation routing equipment to route calls from individual callers, said controlled data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving: 1) calls from said individual callers at said remote terminals routed by the allocation routing equipment to window callers to selected ones of said plurality of interface units at a selected remote geographic location; and 2) for receiving said called number identification data signals (DNIS);

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a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats identified by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, 3) receiving at least two distinct forms of identification data relating to said individual callers and testing at least one of said two distinct forms of identification data to control access to at least certain operations of said selected format and utilizing certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, 4) receiving other data provided by said individual callers at least in part via the digital input structure in response to said cues; and a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to individual callers including at least certain of said other data provided by said individual callers and said central processor utilizing at least certain of said identification data to address stored data, said central processor updating at least certain of said stored data relating to said individual callers in said storage structure based on said identification data and said other data.

53. A controlled data system according to claim **52**, wherein one of said two distinct forms of identification data is customer number data relating to said individual callers.

54. A controlled data system according to claim **53**, wherein said customer number data relating to said individual callers is represented by calling number identification data automatically provided by said communication facility.

55. A controlled data system according to claim **52**, wherein one of said two distinct forms of identification is caller pin number data by said individual callers.

56. A controlled data system according to claim **53**, wherein another of said two distinct forms of identification is personal identification data entered by said individual callers for storage and subsequent identification of said individual callers.

57. A controlled data system according to claim **53**, wherein another of said two distinct forms of identification is caller social security number data entered by said individual callers.

58. A controlled data system according to claim **52**, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

59. A controlled data system according to claim **58**, wherein said limit on use limits said individual callers to a limited number of uses.

60. A controlled data system according to claim **58**, wherein said limit on use is based upon scoring transactions with reference to time.

61. A controlled data system according to claim **52**, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for subsequent processing.

62. A controlled data system according to claim **52**, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

63. A controlled data system according to claim **62**, wherein said analysis structure utilizes comparative process-

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ing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

64. A controlled data system according to claim 52, wherein said plurality of interface units receive calling number identification data, which at least in part controls at least a portion of processing operations by said central processor.

65. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS), said controlled data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving calls from said individual callers at said remote terminals and for receiving said called number identification data signals (DNIS);

a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats identified by said called number identification data signals (DNIS), 3) receiving at least certain identification data relating to said individual callers and testing at least said certain identification data to control access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, said identification data including caller credit card number data and expiration data, which may also be used as billing data, said central processor also receiving said credit card number data and other data provided by said individual callers at least in part via the digital input means in response to said cues;

credit verification structure to verify online said credit card number data; and

a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to individual callers including at least certain of said other data provided by said individual callers and said central processor utilizing at least certain of said identification data to address stored data, said central processor updating at least certain of said stored data in said storage structure based on said identification data.

66. A controlled data system according to claim 65, wherein said credit verification structure verifies said credit card number against a list of unacceptable numbers.

67. A controlled data system according to claim 65, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

68. A controlled data system according to claim 67, wherein said limit on use limits said individual callers to a limited number of uses.

69. A controlled data system according to claim 65, wherein said telephone communication facility controls caller allocation routing structure to window callers to selected ones of said plurality of interface units at a selected geographic location.

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70. A controlled data system according to claim 65, wherein said credit verification structure verifies credit based upon scoring transactions with reference to time.

71. A controlled data system according to claim 65, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for subsequent processing.

72. A controlled data system according to claim 65, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

73. A controlled data system according to claim 65, wherein said plurality of interface units further receive calling number identification data signals automatically provided by said communication facility, wherein said calling number identification signals at least in part control access to at least certain operations of said selected format.

74. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array of alphanumeric buttons for providing data, and wherein said telephone communication facility includes the capability to automatically provide called number identification data signals (DNIS) and wherein said telephone communication facility controls allocation routing equipment to route calls from individual callers, said control data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving: 1) calls from said individual callers at said remote terminals routed by the allocation routing equipment to window callers to selected ones of said plurality of interface units at a selected remote geographic location; and 2) for receiving said called number identification data signals (DNIS);

a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, 2) executing a selected one of said various operating formats identified by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, 3) receiving at least caller credit card number data relating to said individual callers and testing said caller credit card number data to at least in part control access to at least certain operations of said selected format, 4) also receiving other data provided by said individual callers at least in part via the digital input structure in response to said cues; and

a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to individual callers including at least certain of said other data provided by said individual callers and said central processor utilizing at least certain of said credit card number data to address stored data, said central processor updating at least certain of said stored data relating to said individual callers in said storage structure based on said credit card number data and said other data.

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75. A controlled data system according to claim **74**, wherein said other data includes social security number data for said individual callers.

76. A controlled data system according to claim **74**, wherein said plurality of interface units further receive ⁵ calling number identification data signals automatically provided by said telephone communication facility.

77. A controlled data system according to claim **76**, wherein said calling number identification signals at least in part control access to at least certain operations of said ¹⁰ selected format.

78. A controlled data system according to claim **74**, wherein said other data includes caller pin number data for said individual callers.

79. A controlled data system according to claim **74**, ¹⁵ wherein said caller credit card number data is used for identification or for billing or both.

80. A controlled data system according to claim **74**, wherein said selected one of said various operating formats imposes a limit on use for at least certain of said individual ²⁰ callers.

81. A controlled data system according to claim **80**, wherein said limit on use limits said individual callers to a limited number of uses.

82. A controlled data system according to claim **80**, ²⁵ wherein said limit on use is based upon scoring transactions with reference to time.

83. A controlled data system according to claim **74**, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for ³⁰ subsequent processing.

84. A controlled data system according to claim **74**, wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of ³⁵ said individual callers.

85. A controlled data system according to claim **84**, wherein said analysis structure utilizes comparative processing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

86. A controlled data system for use with a telephone communication facility including remote terminals for individual callers, wherein said remote terminals comprise a telephonic capability including voice communication structure, and digital input structure in the form of an array ⁴⁰ of alphanumeric buttons for providing data, and wherein said telephone communication system includes the capability to automatically provide called number identification data signals (DNIS), said control data system comprising:

a plurality of interface units including voice generator capability coupled to said telephone communication facility and placed at spaced apart remote geographic locations for receiving calls from said individual callers at said remote terminals and for receiving said called number identification data signals (DNIS);

a central processor coupled to said plurality of interface units including voice generator capability by communication lines of said telephone communication facility, and coupled through a coupled interface unit for: 1) controlling cues to said individual callers in accordance with any one of various operating formats, 2) executing a selected one of said various operating formats identified by said called number identification data signals (DNIS), which relate to a telephone number dialed by said individual callers, receiving at least identification

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data relating to said individual callers and testing at least said identification data to control access to at least certain operations of said selected format and utilizing the certain identification data to avoid prompting certain callers with a certain previously provided cue or cues and providing at least one other cue, 4) also receiving other data provided by said individual callers at least in part via the digital input structure in response to said cues;

sequence generator in conjunction with said central processor or said coupled interface unit assigning sequential transaction numbers to substantially all calls accomplishing transactions with said individual callers; and

a storage structure associated with said central processor or said coupled interface unit or both for storing data relating to individual callers including at least certain of said other data provided by said individual callers and said sequential transaction numbers, said central processor utilizing at least certain of said identification data to address stored data, said central processor updating at least certain of said stored data relating to said individual callers in said storage structure based on said identification data and said other data.

87. A controlled data system according to claim **86**, wherein said central processor through said coupled interface unit provides said sequential transactional numbers to said individual callers.

88. A controlled data system according to claim **86**, wherein said telephone communication facility controls caller allocation routing structure to window callers to selected ones of said plurality of interface units at a selected geographic location.

89. A controlled data system according to claim **88**, wherein said routing is based upon either the time of day or the geographic location of said individual callers.

90. A controlled data system according to claim **88**, ⁴⁰ wherein said routing is based upon calling number identification signals automatically provided by said communication facility.

91. A controlled data system according to claim **86**, wherein said selected one of said various operating formats imposes a limit on use for said individual callers.

92. A controlled data system according to claim **91**, wherein said limit on use limits said individual callers to a limited dollar amount.

93. A controlled data system according to claim **91**, ⁵⁰ wherein said limit on use is based upon scoring transactions with reference to time.

94. A controlled data system according to claim **86**, wherein said other data stored by said storage structure includes voice and digital data, which are utilized for subsequent processing.

95. A controlled data system according to claim **86**, ⁵⁵ wherein said central processor includes analysis structure for comparing at least certain of said other data provided by said individual callers against external data to isolate a subset of said individual callers.

96. A controlled data system according to claim **95**, wherein said analysis structure utilizes comparative processing of said other data provided by said individual callers to isolate a sub-subset of said individual callers.

* * * * *

EXHIBIT 22

**(12) United States Patent
Katz**

(10) Patent No.: US 6,424,703 B1
(45) Date of Patent: *Jul. 23, 2002

(54) TELEPHONIC-INTERFACE LOTTERY
SYSTEM

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 09/021,956

(22) Filed: Feb. 11, 1998

Related U.S. Application Data

(63) Continuation of application No. 08/306,650, filed on Sep. 14, 1994, which is a continuation of application No. 07/756,956, filed on Sep. 9, 1991, now Pat. No. 5,365,575, which is a continuation-in-part of application No. 07/555,111, filed on Jul. 18, 1990, now Pat. No. 5,048,075, which is a continuation of application No. 07/342,506, filed on Apr. 24, 1989, now abandoned, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 08/306,751, is a continuation-in-part of application No. 08/306,751, filed on Sep. 14, 1994, which is a continuation of application No. 08/047,241, filed on Apr. 13, 1993, now Pat. No. 5,351,285, which is a continuation of application No. 07/509,691, filed on Apr. 16, 1990, now abandoned, which is a continuation-in-part of application No. 07/640,337, filed on Jan. 11, 1991, which is a continuation of application No. 07/335,923, filed on Apr. 10, 1989, which is a continuation of application No. 07/194,258, which is a continuation-in-part of application No. 07/018,244, which is a continuation-in-part of application No. 06/753,299, said application No. 07/509,691, is a continuation-in-part of

application No. 07/260,104, filed on Oct. 20, 1988, now Pat. No. 4,930,150, which is a continuation-in-part of application No. 07/018,244, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 08/306,650, is a continuation of application No. 07/335,923, which is a continuation of application No. 07/194,258, which is a continuation-in-part of application No. 07/018,244, which is a continuation-in-part of application No. 06/753,299.

(51) Int. Cl.⁷ H04M 11/00

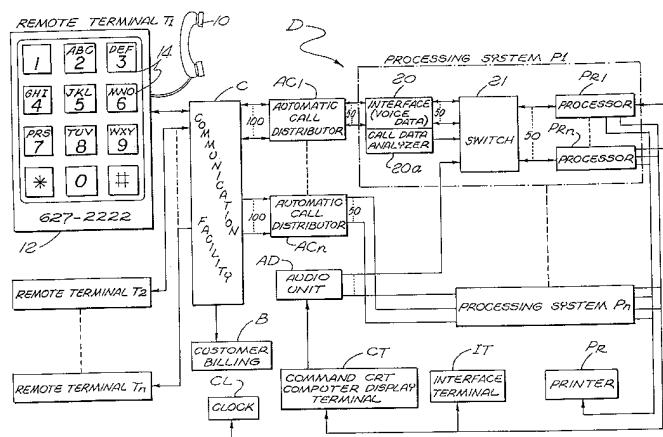
(52) U.S. Cl. 379/93.13

(58) **Field of Search** 379/93.13, 93.02,
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- Primary Examiner—Stella Woo*
(74) Attorney, Agent, or Firm—Ronald A. Katz;
Technology Licensing LP

(57)

ABSTRACT

A telephonic-interface lottery system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C to enable lottery players to call and play for at least one additional chance to possibly win by dialing a pay-to-dial telephone number indicated on a "scratch-off" or online game lottery ticket for use in the system. At the terminals, callers are prompted by voice-generated instructions to provide digital data, such as their telephone number, age, social security number, and/or drivers license number. In addition, the sequence number of the caller as well as the date and time of the call is recorded for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement-and sequence. In accordance with one format, an instant winner is selected online by utilizing techniques such as determining a random winning sequence number or a winning lottery number generated by a number generator. As an adjunct or alternative, the identification data is processed at a later time to determine a grand prize drawing winner by using various processing techniques for determining winners.

125 Claims, 6 Drawing Sheets

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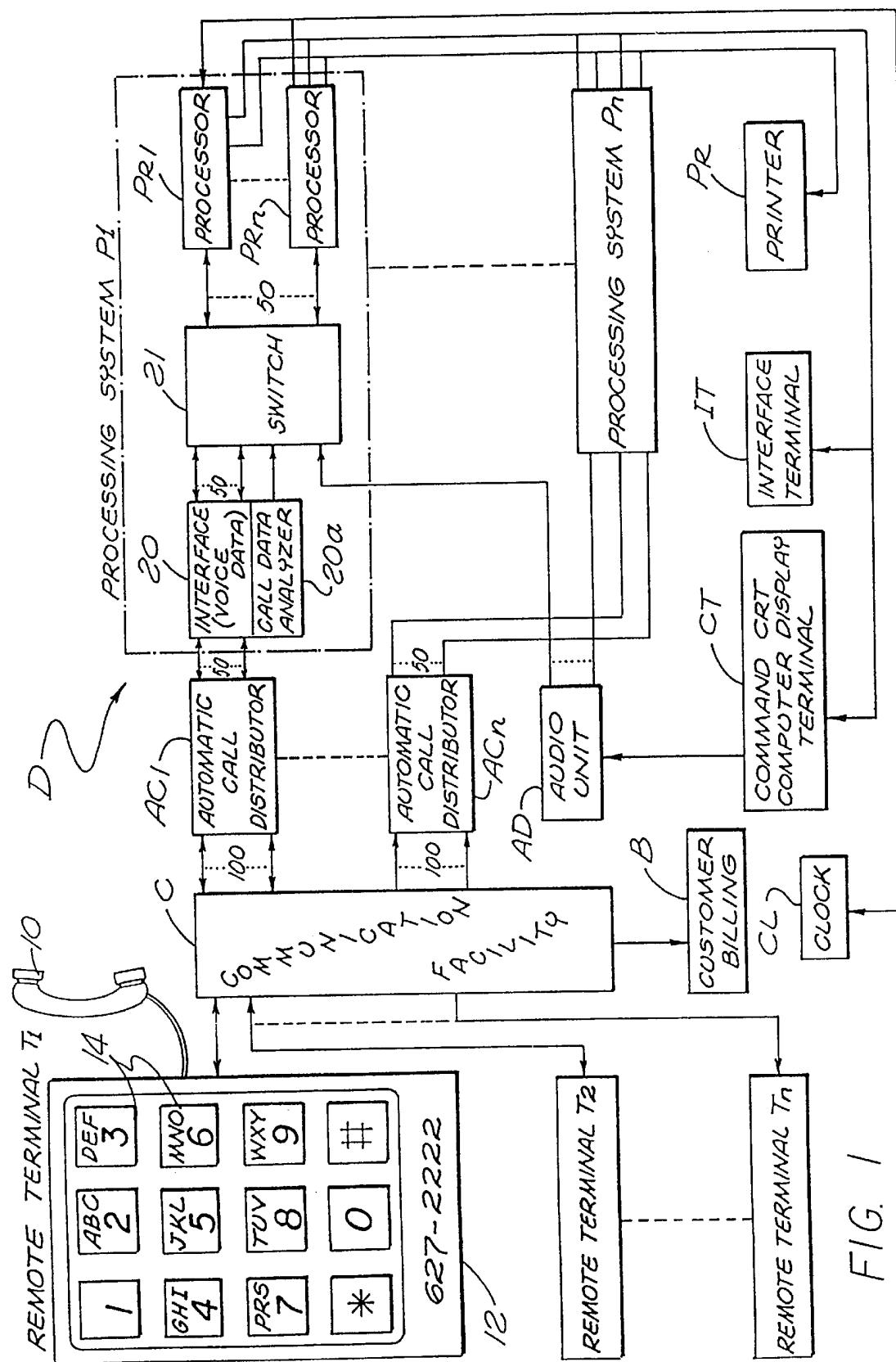


FIG. 1

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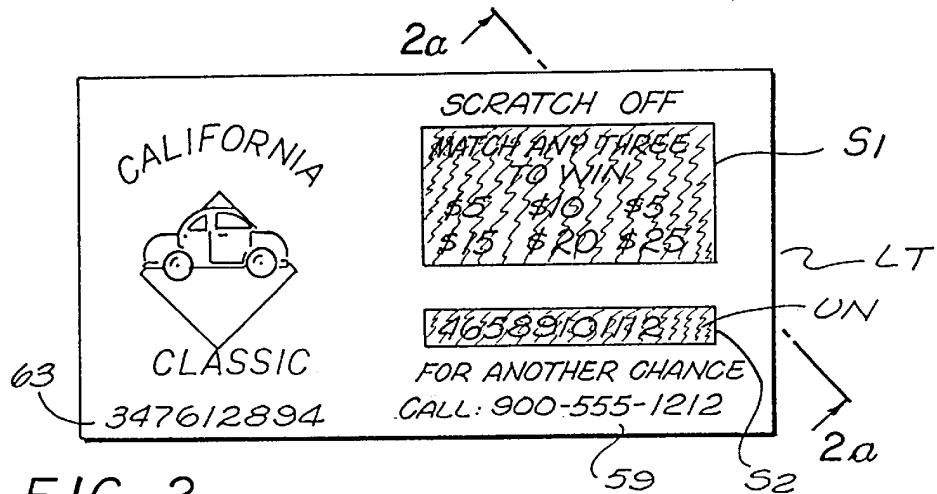


FIG. 2

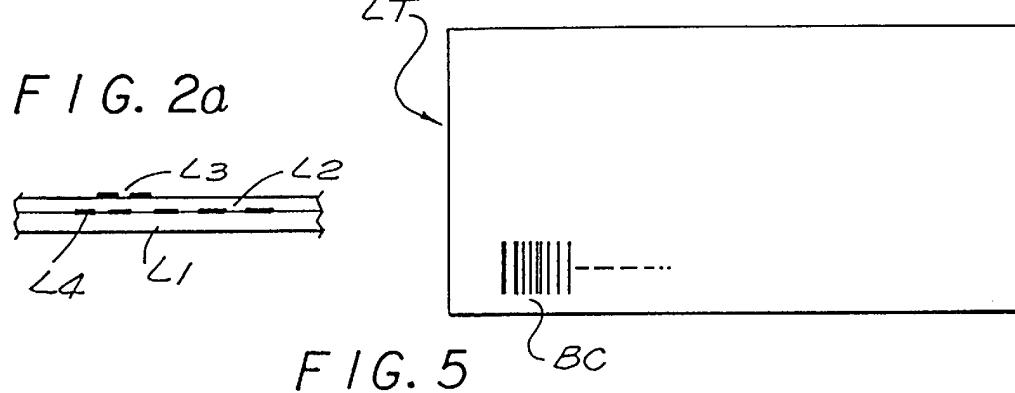


FIG. 5

FIG. 7

C1 53	58	62	64	66
CALLERS TELEPHONE NUMBER	DATA: AGE, DRIVER'S LICENSE #, CREDIT CARD # OR SOCIAL SECURITY #	DATE AND TIME	SEQUENCE NUMBER	LOTTERY/UN NUMBER
627-2222	21,0308050	AUG.18, 1:30am	4951	465789101112
.....			PRIZE AMOUNT TYPE	ASSIGNED DESIGNATION
.....			4951684	6173
.....			ACKNOWLEDGE DIGITS	
.....			69	

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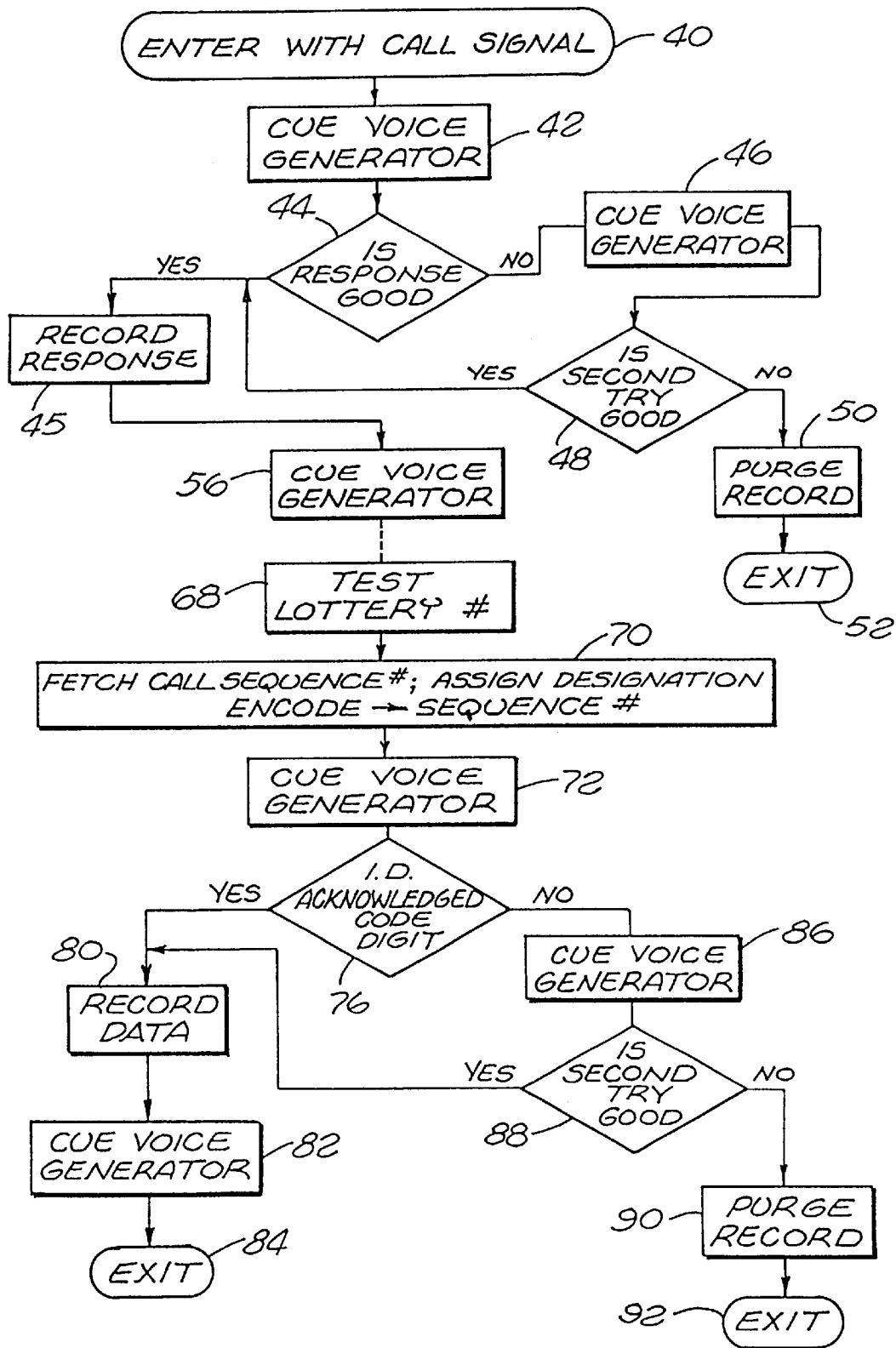


FIG. 3

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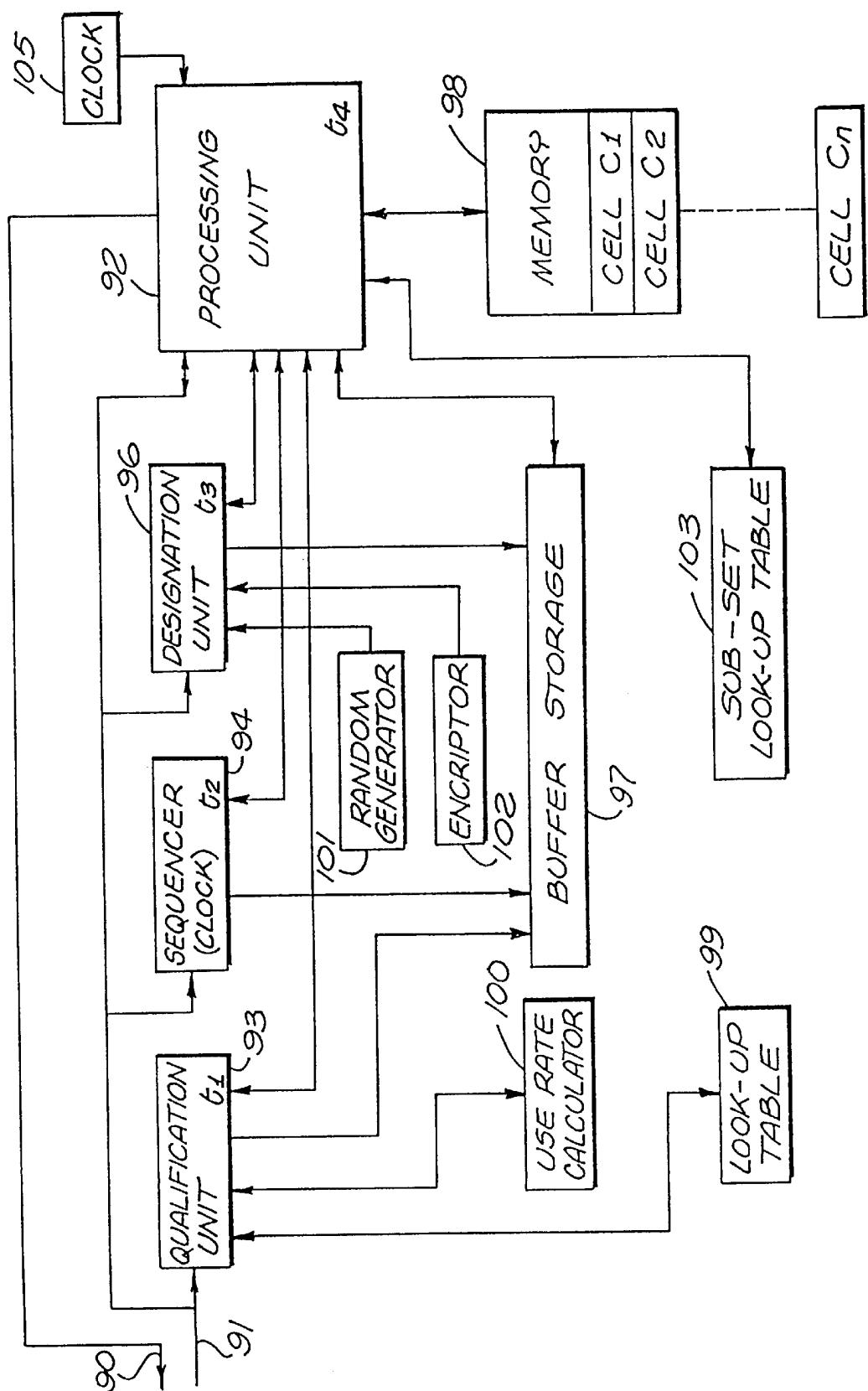


FIG. 4

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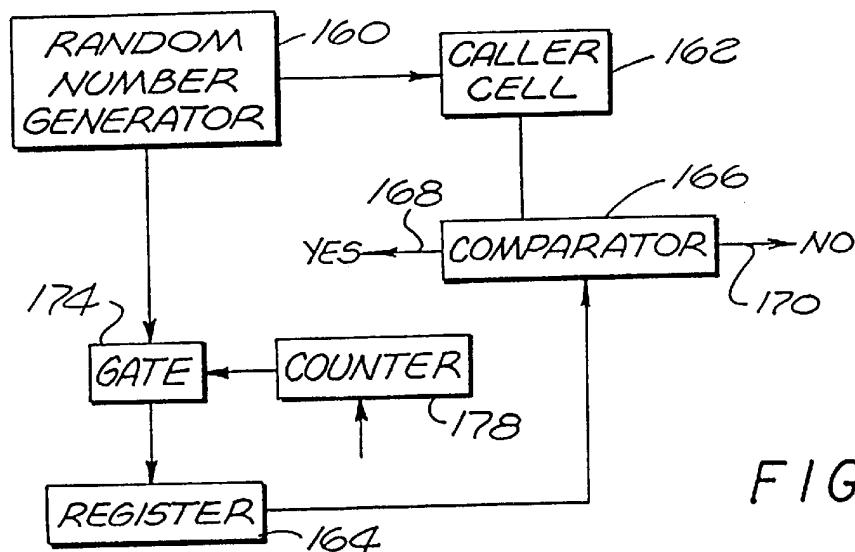


FIG. 6

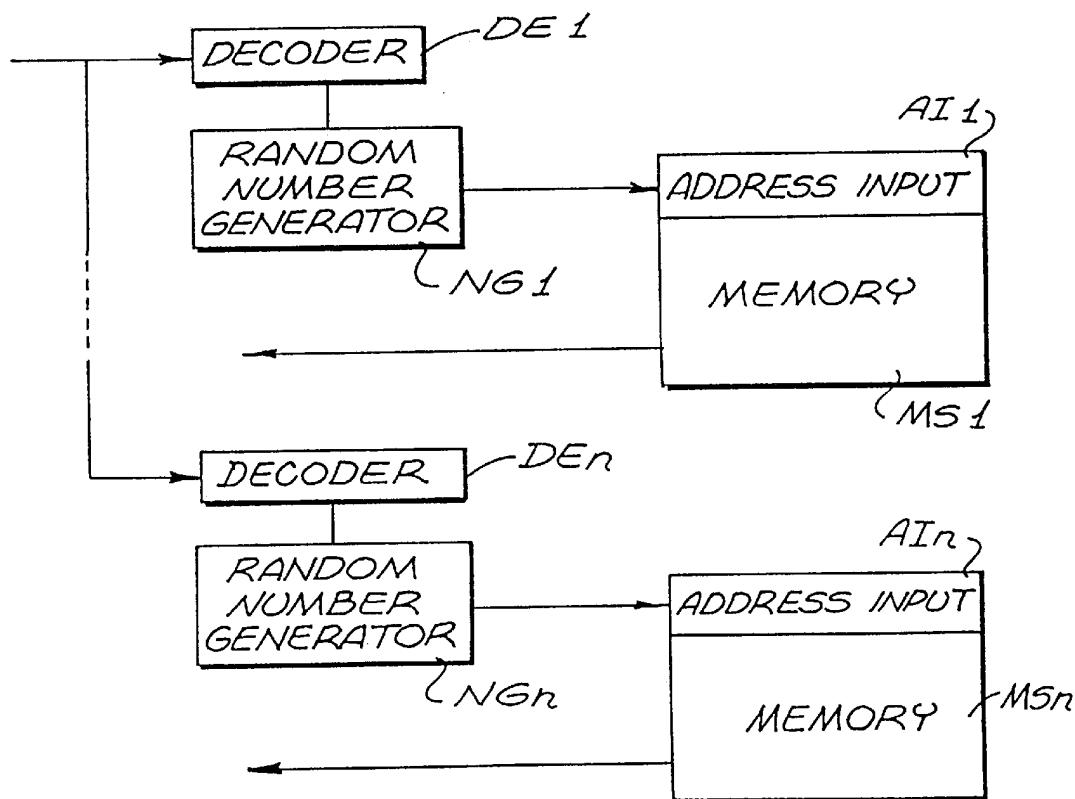


FIG. 8

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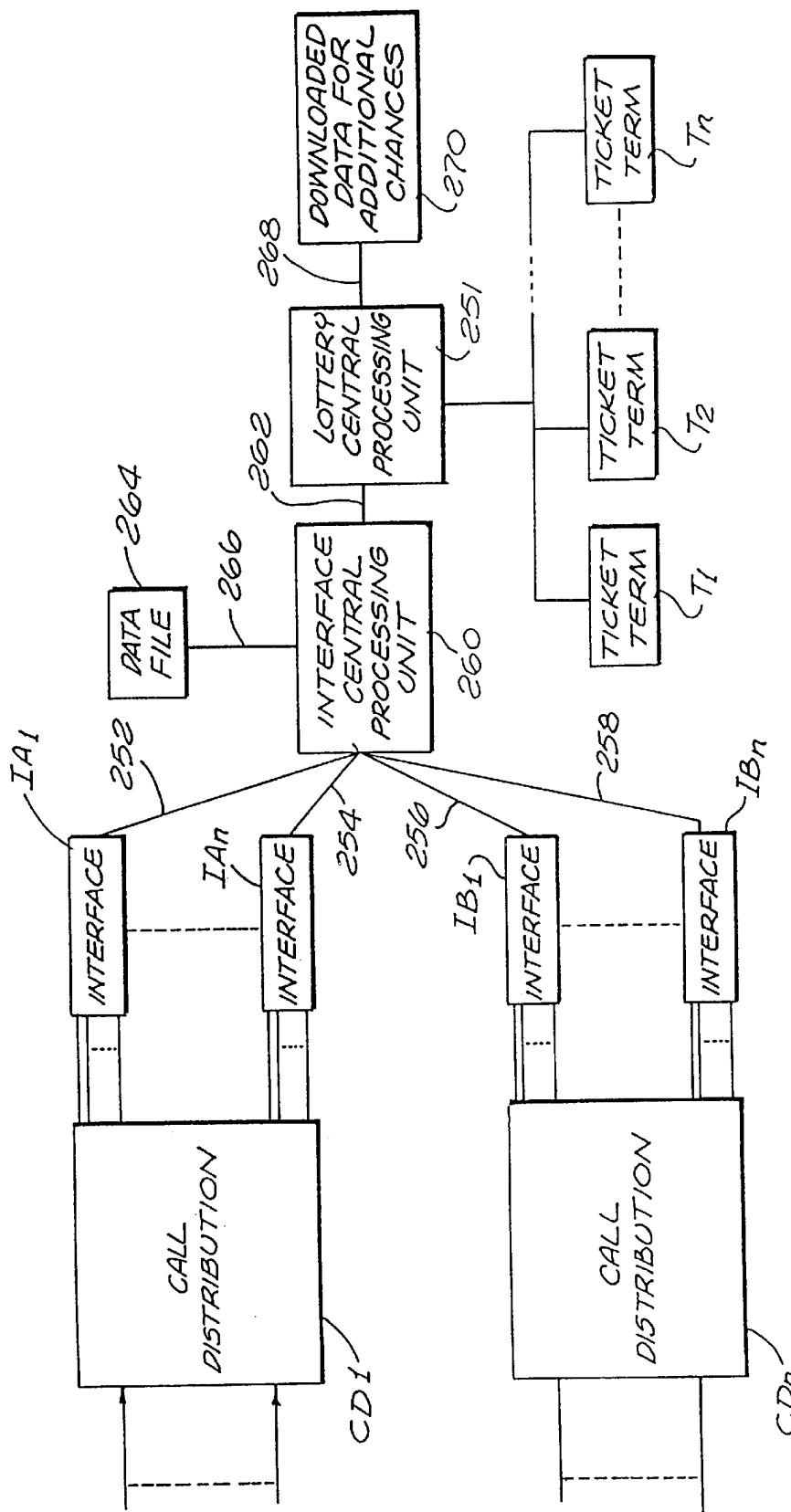


FIG. 9

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**TELEPHONIC-INTERFACE LOTTERY
SYSTEM**

This is a continuation of application Ser. No. 08/306,650 filed on Sep. 14, 1994, and entitled "Telephonic-Interface Lottery System," which is a continuation of application Ser. No. 07/756,956 filed on Sep. 9, 1991, and entitled "Telephonic-Interface Lottery System," now U.S. Pat. No. 5,365,575, which is a continuation-in-part of application Ser. No. 07/555,111 filed on Jul. 18, 1990, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 5,048,075, which was a continuation of application Ser. No. 07/342,506 filed on Apr. 24, 1989, and entitled "Telephonic-Interface Statistical Analysis System," now abandoned, which was a continuation of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which was a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned.

Also, application Ser. No. 08/306,650 is a continuation-in-part of application Ser. No. 08/306,751 filed on Sep. 14, 1994, and entitled "Multiple Format Telephonic Interface Control System," which is a continuation of application Ser. No. 08/047,241 filed on Apr. 13, 1993, and entitled "Multiple Format Telephonic Interface Control System," now U.S. Pat. No. 5,351,285, which is a continuation of application Ser. No. 07/509,691 filed on Apr. 16, 1990, and entitled "Multiple Format Telephonic Interface Control System," now abandoned, and a continuation-in-part of application Ser. No. 07/640,337 filed on Jan. 11, 1991, and entitled "Telephonic-Interface Statistical Analysis System," which is a continuation of application Ser. No. 07/335,923 filed on Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System," which is a continuation of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned, said application Ser. No. 07/509,691, is a continuation-in-part of application Ser. No. 07/260,104 filed on Oct. 20, 1988, and entitled "Telephonic Interface Control System," now U.S. Pat. No. 4,930,150, which is a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned.

Also, application Ser. No. 08/306,650 is directly a continuation-in-part of application Ser. No. 07/335,923 filed on Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System," which is a continuation of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which is a continuation-in-part of

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application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. § 120.

**BACKGROUND AND SUMMARY OF THE
INVENTION**

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset, or sub subsets of at least one person. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify an individual billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

The public lottery has become widely accepted as a basis for supporting government activities while providing aspects of entertainment and hope. Typically, conventional public lotteries have been facilitated by computers and data processing systems utilizing various formats. One conventional type of lottery incorporates the use of "scratch-off" lottery tickets that are sold by retailers. Under this system, winning tickets are returned to lottery retailers who redeem the tickets for the prize amounts, based on a physical approval of the lottery ticket.

In general, the present invention comprises a telephonic-interface lottery system and related process to further stimulate interest in the lottery by providing at least one additional chance to possibly win some prize (whether or not the scratch-off lottery ticket is a winner) by calling a pay-to-call number indicated on the scratch-off lottery ticket. The telephonic-interface lottery system can also be utilized with online tickets in which case the online terminal printer can print at least one unique identification number (either the existing printed ticket or lotto number or a new special number which may be interrelated to the existing ticket number) for subsequent telephone use. In one embodiment, scratch-off lottery tickets for use in the telephonic-interface lottery system include primary indicia defining a lottery format to evidence a winning lottery combination and at least one unique identification number used to pursue the additional chances. The lottery format and at least a portion of the identification number are concealed. The telephone

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number facilitating a play of the additional chance is a pay-to-call-number, such as preferably a 900 phone number.

The telephonic-interface lottery system utilizes both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, to record data relating to each caller, in particular data formulated by the lottery system such as the sequence number of the call including the date and time at which the call occurred, data provided by the caller such as the area code and telephone number followed by the unique identification number or additional chance number from the lottery ticket. The system is configured to eliminate duplicate entries and verify the unique identification number. Instant winners can be selected while the lottery player is on the telephone by a designated winning sequence number or by a random number generator. In addition, winners can also be selected at a later designated time by a designated winning sequence number or by the random number generator.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a telephonic-interface lottery system constructed in accordance with the present invention;

FIG. 2 is a top plan view of a scratch-off lottery ticket for use in the system of FIG. 1;

FIG. 2a is a cross sectional view taken along line 2a-2a in FIG. 2;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a bottom plan view of the scratch-off lottery ticket shown in FIG. 2;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of the connections between an interface CPU, a remote lottery CPU and remote stations.

DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional tele-

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phone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers including digital data provided by callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The telephonic-interface lottery system of the present invention further stimulates interest in the lottery by providing at least one additional chance to possibly win a prize in addition to a winning lottery format provided on a scratch-off lottery ticket or an online ticket. The additional chance is facilitated by calling a pay-to-call number indicated on the scratch-off lottery ticket. Some formats may use toll free 800 numbers as well.

The callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers may be prompted, either through the interface or externally, to provide appropriate data, such as their age and the additional chance number which may be one or more unique identification numbers.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "*" and "#", along with the numeral "0", can be used by predetermined

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assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, right). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. Also, in various systems audio response units (ARU's) may be used as for preliminary processing in accordance with the operations as described below.

In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface 20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as

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blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons, such as persons holding a proper lottery ticket and being over a certain age. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset or sub subsets, the members of whom must be accurately verified.

As described below, in a lottery format the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing, structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data receiving phase during which digital data (formatted at one of the telephone terminals T1-Tn by the caller) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) and also possibly a sub subset, the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

A general sequence of operations for a format is represented to be initiated in FIG. 3 by the "enter" block 40 which is accordingly followed by a "cue voice generator" command block 42. If the ANI (automatic number identification) equipment is not employed, the voice generator in the interface 20 formulates speech, a representative form of which might be: "Thank you for participating in the lottery.

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Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block **48** (FIG. 3). Specifically, block **48** poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block **50** and the call is terminated as indicated by the block **52**. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block **45**. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 7 showing the individual fields or sections. The first portion, section **53**, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block **48** (FIG. 3), the response is recorded at that stage. In either case, exiting from the block **45** (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block **56**.

At this juncture, the system proceeds to receive and process the lottery ticket data as well as other data such as the identification data provided by the caller and the data formulated by the computer. The result is a subset of winners, or perhaps ultimately several subsets or sub subsets of winners or potential winners. However, first the lottery ticket number (such as the unique identification number) is entered by the caller as indicated by the block **68**. The lottery number may be stored in section **66** (FIG. 7) of cell C1.

At the outset, the system may test the lottery ticket number on the basis of its format. That is the number is verifiable (as by digit combinations, for example the first two digits may equal the third) and is tested as explained above in relation to the telephone number. If a received number is invalid, the call may be terminated as explained above. Any record may be purged.

If the number is valid, it is next tested as a winner. Essentially, the number is treated as a consumable key,

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entitled for example to a single use for participation. The participation may include an online subset determination of winners and a subsequent offline determination of another subset of winners. These tests are indicated by the block **68**. From that point, as illustrated by the block **70**, data is accumulated for subsequent offline processing.

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks **42** through **56**. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 7 by the number "58".

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically such as: the date and time of the call, the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections **62**, **64**, **67** and **69**. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits.

Considering the example numerically:

30	4951
	2222
	6173

Adding without propagated carries:

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification of an ultimate winner could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section **62** while the acknowledge digits are 6173 as registered in the section **66**. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "14951684", which is registered in the section **67**, the acknowledge code or digits, e.g. 6173, being registered in the section **69**. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

In the detailed operation, in addition to entering data from the remote terminal, the processor PR1 (FIG. 1) cues the internal memory as indicated by the block **70** (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned, in some cases the sequence number is the designated number), and encodes the sequence number as the acknowledgment digits (if not previously accomplished).

To confirm receipt of the acknowledgement digits, the processor PR1 (FIG. 1) cues the voice generator in the interface **20**, as indicated by the block **72** (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface **20** (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173.

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Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In lottery applications typically involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information relating to each call. Such data, accumulated from the various calls may be considered by logic comparisons in the computer 22 to select the subset of winning persons who should be isolated at a later point.

The processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data, such as a look-up table, that is supplied through the command terminal CT.

Preliminary to considering an exemplary form of the telephonic-interface lottery system of the present invention, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement to participate in the lottery, develop a

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sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are memory 98 (with cells C1-Cn), a look-up table 103 and clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to a certain specific application in relation to the operation of the system.

As the illustrative operating format, an embodiment of the telephonic-interface lottery system will now be described. The legalized state lottery typically features various "scratch-off" ticket lottery game formats such as "the California Classic", "Treasure Hunt", "Blackjack", "Lucky 7's" and the like. In addition, lotteries typically offer online games such as Lotto. The enhanced lottery system accommodated by the present telephone system may utilize pay-to-dial numbers ("900-xxxx") or toll free 800 numbers and may be restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery only a limited number of times or to the extent of a limited dollar value during a predetermined interval.

Certain digits of the unique identification number may contain information on a particular format, for example the "California Classic". Multiple formats may run simultaneously and the DNIS for example may indicate the lottery format and processing for each game. Additionally digits in the unique number when entered by the caller might indicate a telephone subformat.

Referring now to FIG. 2, a lottery participant upon purchasing a "scratch-off" lottery ticket LT for use in the system D has at least two chances to win. The first chance is facilitated by a lottery format defining a winning combination, for example by matching three like dollar amounts or symbols from a plurality provided in a first section S1. Subsequent chances are provided by telephone communication in accordance herewith. Preliminarily, consider the specific structure of a ticket in accordance herewith.

The lottery ticket LT is made from any suitable base substrate typically used and is likewise suitably sized to accommodate all the information. A scratch-off layer covers part or all of the ticket. Structurally, the ticket LT is a composite including a base substrate L1 (FIG. 2a) bearing a latex scratch-off layer L2. Visible print or indicia L3 appears on the latex layer L2 which may be integral or over stamped. Concealed indicia L4 is fixed on the substrate L1 and is revealed when the latex layer is removed. As illustrated in FIG. 2, the concealing areas S1 and S2 of the latex layer L2 are illustrated by wavy lines, accordingly normally concealed indicia is revealed.

As illustrated in FIG. 2, the upper section S1 of the scratch-off latex layer L2 defines ticket-specified winners. That is, as indicated above, matching combinations or symbols define winners. The lower scratch-off section S2 of the ticket LT indicates a unique identification number UN

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which may be several digits. The first section S1 and at least a portion of the identification number UN is covered with a suitable substance, such as latex in order to conceal the lottery format and the complete identification number from the lottery participants, retailers and the like and prevent any fraudulent activity. The unique identification number may also be the stock number (sequence number assigned by the lottery for each ticket to keep track thereof) of the lottery ticket with additional concealed or latex protected digits.

The lottery ticket LT also indicates the pay-to-dial telephone number indicia 59 to facilitate additional chances to win. For example, the lottery ticket LT bears indicia 61 indicating "For Another Chance call 900-555-1212". Accordingly, regardless of whether the lottery ticket LT defines a winning combination, the lottery participant has another chance to possibly win by dialing the pay-to-dial number and incurring a further minimal cost, for example 50 cents. In some formats all players including winners of the matching combinations are provided with an additional opportunity to win. Note that the ticket LT also carries another number as indicated by the unconcealed indicia 63.

The lottery ticket LT on its reverse side is provided with a bar code BC defining a number corresponding to the unique identification number UN which would allow the retailer or the lottery system to verify instant winners when the lottery tickets are redeemed and automatically cancel related information on the data stored in the memory.

Pursuing the operation of the system in greater detail, using the specified calling number (900 555 1212) from the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1. Communication would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above.

The initial operation involves qualification of the caller to participate in the lottery. Again, ANI or caller interface techniques may be employed as described above. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment. As indicated above, in one sequence the callers telephone number is tested at this point. Also, the lottery number also may be tested at this stage or subsequently. Various sequences are practical, another of which involves data accumulation prior to winner tests.

After the caller's telephone number is registered, the instruction is given: "Participation in the lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A birth date, social security number, driver's license or credit card number may be similarly registered to confirm age or confirm identification of caller. Alternatively, the combination of telephone number and date or year of birth or age could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. The designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction which may be the sequence number. As explained above, the random generator 101 with or without the encryptor 102

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may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.—Birth Year—Designation—Random No. In the format being described, the system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

Typically, a caller will have scratched off the latex layer L2 over the section S2 prior to placing a call to the lottery interface system. Depending on the operating sequence employed, at some point, the caller is cued to input the number carried by the indicia UN. Specifically, the number is simply entered using the terminal touch tone keypad. As a result winners can be selected with online processing while the caller is on the phone as well as by off-line processing at a later designated time. Both online and off-line winners can be selected by determining a winning sequence number or by selecting a random lottery number or selecting a random sequence number.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "not" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a

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positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on. Alternatively, historical data cells for each caller may be maintained.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are located at different geographic locations along with associated interface units IA1-IA_n and IB1-IB_n. Each of the interface units, as unit IA1 is coupled to an interface central processing unit 260 as indicated by lines 252, 254, 256 and 258. The interface CPU 40 260 may be located geographically proximate the interface units, for example in Omaha, to record and store the data relating to each caller, including the data provided by the caller and the data formulated by the computer in a data file 264 coupled thereto as indicated at line 266. Each of the 45 lines may take the form of a dedicated telephone line or a polling telephonic coupling. The interface central processing unit 260 is coupled to a lottery central processing unit 251 indicated at line 262 which may be located remote from the interface central processing unit 260 as for example in 50 Indianapolis.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I and the interface CPU 260 to provide interface communication between the 55 lottery central processing unit 251 and a multitude of remote terminals T1-T_n. The interface central processing unit 260 stores complete data with regard to each caller in the data file 264. The interface central processing unit 260 may variously transmit or download important data only, for example the unique identification or ticket number and prize type (such as B) or prize amount (\$50) stored in section 65 (FIG. 7) to the lottery central processing unit 251. Accumulated data with regard to a plurality of callers may be transmitted at a designated time to save on transmission time and cost. Downloaded data for the additional chances is also stored at a file 270. Thus, the distributed-component system is

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capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A method for conducting a telephonic-interface ticket control operation for use with a communication facility including remote terminal apparatus for individual callers, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, comprising the steps of:
 assigning a predetermined limit on access to an interactive call processing format;
 receiving dialed number identification signals automatically provided from the communication facility (DNIS) to indicate a called number, wherein said called number is indicative of said interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS) and also receiving calling number identification signals automatically provided from the communication facility;
 storing the calling number identification signals and using the calling number identification signals to control certain operations of the interactive call processing format;
 providing an identification number on a ticket, said identification number entered by each individual caller via said digital input means to access said interactive call processing format until said predetermined limit is reached;
 storing data indicative of an extent of access accomplished for said identification number entered by each individual caller;
 testing said data indicative of said extent of access accomplished against said predetermined limit on access to determine if said predetermined limit on access is reached and further testing to limit access during a predetermined interval of time, wherein if the predetermined limit on access is reached by a particular caller, communication with that caller is terminated or that caller is transferred to an interface terminal for communication with an operator; and
 providing a distinct indicia associated with said ticket and co-relating said distinct indicia to at least a portion of said identification number.
2. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, wherein said testing step further comprises the step of:
 testing said identification number with a check digit test.
3. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, wherein said testing step further comprises the step of:
 testing said identification number based on entitlement.
4. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, further comprising the step of:
 concealing at least a portion of said identification number.
5. A method for conducting a telephonic-interface ticket control operation as defined in claim 4, wherein said concealing step further comprises the step of:

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applying an obscuring material to said identification number.

6. A method for conducting a telephonic-interface ticket control operation as defined in claim **5**, wherein said applying step further comprises the step of:

using a latex coating as said obscuring material.

7. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

recording the date and time at which each call occurs.

8. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, wherein said distinct indicia associated with said ticket is a bar code indicia on said ticket.

9. A method for conducting a telephonic-interface ticket control operation as defined in claim **8**, further comprising the step of:

utilizing said bar code indicia for automatic entry of data for accessing related stored information including said identification number.

10. A method for conducting a telephonic-interface ticket control operation as defined in claim **9**, further comprising the step of:

rendering said ticket ineffective by utilizing said bar code indicia to cancel said related stored information including said identification number.

11. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

providing said identification data as indicia on said ticket along with said distinct indicia and an additional numerical indicia.

12. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

recording additional identification data provided by the caller.

13. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

recording said caller's credit card number.

14. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

recording at least two separate types of caller provided identification data.

15. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

processing said identification number online.

16. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

providing visual indicia on a ticket illustrative of a name of a specific interactive call processing format from a plurality of names of interactive call processing formats.

17. A method according to claim **16**, wherein said visual indicia further includes a specific visual theme associated with said interactive call processing format taken from a plurality of visual themes associated with a plurality of different interactive call processing formats.

18. A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

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receiving digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

5. **19.** A method for conducting a telephonic-interface ticket control on operation as defined in claim **18**, further comprising the step of:

storing said digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

10. **20.** A method for conducting a telephonic-interface ticket control operation as defined in claim **18**, wherein said testing step further includes a preliminary test for testing digital

15. signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility to limit or prevent access to said interactive call processing format.

20. **21.** A method according to claim **18**, further comprising the step of:

processing said data indicative of said extent of access in accordance with said interactive call processing format, and utilizing said digital signals representing calling number identification data associated with said remote terminal apparatus for said processing.

25. **22.** A method for conducting a telephonic-interface ticket control operation as defined in claim **18**, wherein said testing step further includes the use of said digital signals representing calling number identification data to at least in part control the extent of access.

30. **23.** A method for conducting a telephonic-interface ticket control operation as defined in claim **18**, wherein said digital signals representing calling number identification data control at least certain aspects of said ticket control operation.

35. **24.** A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

interfacing a plurality of calls from said individual callers via an automatic call distributor for access to said interactive call processing format.

40. **25.** A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, wherein at least certain digits of said identification number entered by certain of said individual callers indicate a select subformat.

45. **26.** A method for conducting a telephonic-interface ticket control operation according to claim **1**, further comprising the step of:

processing data entered by each of said individual callers and utilizing at least part of said data to select at least one subset of at least one caller from said individual callers.

50. **27.** A method for conducting a telephonic-interface ticket control operation according to claim **1**, further comprising the step of:

providing visual indicia on said ticket including a specific visual theme associated with said interactive call processing format selected from a plurality of visual themes associated with a plurality of interactive call processing formats.

55. **28.** A method for conducting a telephonic-interface ticket control operation as defined in claim **1**, further comprising the step of:

prompting said individual callers via a voice generator to enter data; and

storing at least certain of said data responsive to said prompting step.

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29. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, wherein access is limited based upon a limited number of uses.

30. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, wherein the access is limited based upon a limited number of uses in a predetermined interval of time.

31. A method of conducting a telephone-interface ticket control operation as defined in claim 29, wherein the access is limited based upon a limited number of uses for defined intervals of time.

32. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, wherein access is limited based upon a limited number of uses for a predetermined interval of time.

33. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, further comprising the step of:

receiving digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

34. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, wherein said testing step further includes the use of said digital signals representing calling number identification data to at least in part control the extent of access.

35. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, further comprising the step of:

providing visual indicia on a ticket illustrative of a name of a specific interactive call processing format from a plurality of names of interactive call processing formats.

36. A method for conducting a telephonic-interface ticket control operation as defined in claim 29, further comprising the step of:

concealing at least a portion of said identification number.

37. A method for conducting a telephonic-interface ticket control operation as defined in claim 36, wherein said concealing step further comprises the step of:

applying obscuring material to said identification number.

38. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, wherein access is limited based upon a limited dollar value.

39. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, wherein the access is limited based upon a limited number of uses in a predetermined interval of time.

40. A method of conducting a telephonic-interface ticket control operation as defined in claim 38, wherein the access is limited based upon a limited number of uses for defined intervals of time.

41. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, wherein access is limited based upon a limited number of uses for a predetermined interval of time.

42. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, further comprising the step of:

receiving digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

43. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, wherein said testing

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step further includes the use of said digital signals representing calling number identification data to at least in part control the extent of access.

44. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, further comprising the step of:

providing visual indicia on a ticket illustrative of a name of a specific interactive call processing format from a plurality of names of interactive call processing formats.

45. A method for conducting a telephonic-interface ticket control operation as defined in claim 38, further comprising the step of:

concealing at least a portion of said identification number.

46. A method for conducting a telephonic-interface ticket control operation as defined in claim 45, wherein said concealing step further comprises the step of:

applying obscuring material to said identification number.

47. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, wherein said called number is a toll free number selected from a plurality of toll free numbers under control of said dialed number identification signals (DNIS).

48. A method for conducting a telephonic-interface ticket control operation as defined in claim 1, further comprising the step of:

utilizing a clock to limit access during said predetermined interval of time.

49. A method according to claim 1, wherein certain digits of said identification number contain information specific to each of said plurality of interactive call processing formats and said digits are tested for entitlement to access said interactive call processing format selected from said plurality of interactive call processing formats.

50. A telephonic-interface ticket control system for use with a communication facility including remote terminal apparatus for individual callers to call, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, said telephonic-interface ticket control system comprising:

interface means couple to said communication facility to interface said remote terminal apparatus for voice and digital communication with said individual callers wherein dialed number identification signals are automatically provided from said communication facility (DNIS) to identify a called number from a plurality of called numbers and calling number identification signals are automatically provided from the communication facility to identify a calling number;

voice generator means coupled through said interface means for providing vocal instructions to an individual caller to enter identification data from a ticket, said ticket having associated therewith a distinct indicia co-related to said identification data;

memory means coupled to said interface means for storing said identification data and data indicative of an extent of access accomplished by said individual callers as well as the calling number identification signals that are used to control certain operations of the telephonic-interface ticket control system; and

qualification means coupled to said interface means for limiting access to said ticket control system based on said extent of access accomplished by said individual callers and wherein if the extent of access is reached by a particular caller, communication with that caller is

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terminated or that caller is transferred to an interface for communication with an operator.

51. A telephonic-interface ticket control system according to claim **50**, wherein said plurality of called numbers are indicative of a plurality of different operating formats.

52. A telephonic-interface ticket control system according to claim **51**, wherein access to said plurality of different operating formats are provided via different toll free numbers.

53. A telephonic-interface ticket control system according to claim **51**, wherein at least certain digits of said identification data entered by each individual caller indicate a select telephone subformat.

54. A telephonic-interface ticket control system according to claim **50**, wherein said qualification means utilizes a look-up table to determine if a limit on access is reached.

55. A telephonic-interface ticket control system according to claim **50**, wherein said qualification means limits access to a one time use only.

56. A telephonic-interface ticket control system according to claim **50**, further comprising:

means for generating sequence data for each individual call.

57. A telephonic-interface ticket control system according to claim **50**, further comprising:

means for controlling recording of data in said memory
means with respect to the date or time at which each call occurs or both.

58. A telephonic-interface ticket control system according to claim **50**, further comprising:

receiving means for receiving digital signals representing
calling number identification data associated with said
remote terminal apparatus automatically provided by
said communication facility.

59. A telephonic-interface ticket control system according to claim **58**, wherein said digital signals are utilized for automated processing of said ticket.

60. A telephonic-interface ticket control system according to claim **58**, wherein said memory means stores said digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

61. A telephonic-interface ticket control system according to claim **60**, wherein said qualification means tests digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility to limit or prevent access to said ticket control system.

62. A telephonic-interface control system according to claim **50**, wherein said distinct indicia is a bar code indicia on said ticket.

63. A telephonic-interface control system according to claim **50**, wherein said bar code distinct indicia is machine readable and is utilized for automatic entry of data for accessing related stored information including said identification number.

64. A telephonic-interface control system as defined in claim **63**, further comprising: means for rendering said ticket ineffective by utilizing said machine readable indicia to cancel related stored information including said identification number.

65. A telephonic-interface control system according to claim **50**, wherein said qualification means also tests to limit access during a predetermined interval of time.

66. A telephonic-interface ticket control system as defined in claim **50**, wherein said ticket bears numerical indicia in addition to machine readable indicia and identification data indicia.

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67. A telephonic-interface ticket control system as defined in claim **50**, wherein at least a portion of said identification data is concealed.

68. A telephonic-interface ticket control system as defined in claim **67**, wherein at least a portion of said identification data is concealed with an obscuring material.

69. A telephonic-interface ticket control system as defined in claim **67**, wherein at least a portion of said identification data is concealed with a latex coating.

70. A telephonic-interface ticket control system according to claim **50**, wherein said qualification means limits access to a limited number of uses.

71. A telephonic-interface ticket control system according to claim **50**, wherein said qualification means limits access to a specified dollar amount.

72. A telephonic-interface control system for use with a communication facility including remote terminal apparatus for individual callers to call, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, said telephonic-interface control system comprising:

interface means coupled to said communication facility to interface said remote terminal apparatus for voice and digital communication with said individual callers based upon dialed number identification signals (DNIS) indicative of a called number provided automatically from said communication facility, said interface means also receiving calling number identification signals provided automatically by the communication facility to identify a calling number, said interface means using said calling number identification signals for controlling certain operations of the telephonic-interface control system;

voice generator means coupled through said interface means for providing vocal instructions to an individual caller to enter data and identification data;

processing means for processing said data supplied by said individual callers, said processing means coupled to said interface means and selecting at least one subset of at least one caller from said individual callers;

qualification means coupled to said interface means for limiting access during at least an interval of time to said processing means based upon comparing said identification data with previously stored identification data and wherein if a particular individual caller is not qualified, communication with that caller is either terminated or that caller is transferred to an interface terminal for communication with an operator; and

means for storing coupled to said interface means for storing said data in association with said previously stored identification data.

73. A telephonic-interface control system as defined in claim **72**, wherein said qualification means utilizes a look-up table to determine if a limit on an extent of access is exceeded.

74. A telephonic-interface control system according to claim **73**, wherein said limit on access relates to a limited number of uses.

75. A telephonic-interface control system according to claim **73**, wherein said limit on access relates to a limit on a dollar amount.

76. A telephonic-interface control system according to claim **75**, wherein said limit on a dollar amount is during a predetermined interval of time.

77. A telephonic-interface control system according to claim **75**, wherein said limit on access relates to a limit on

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a dollar amount in a defined intervals of time in accordance with a use rate calculator.

78. A telephonic-interface control system as defined in claim **72**, wherein said processing means selects said subset offline subsequent to accumulating data with regard to a ⁵ multitude of said individual callers.

79. A telephonic-interface control system as defined in claim **72**, wherein said called number is one of a plurality of called numbers associated with a plurality of distinct operating formats.

80. A telephonic-interface control system according to claim **79**, wherein one of said plurality of formats is accessed by a toll free number and another format is accessed by a pay to dial number. ¹⁰

81. A telephonic-interface control system according to claim **79**, wherein one of said formats is accessed by a pay to dial number and a toll free number and another of said formats is accessed by another toll free number. ¹⁵

82. A telephonic-interface control system as defined in claim **72**, wherein said dialed number identification signals (DNIS) identify one called number from a plurality of ²⁰ distinct called numbers including toll free called numbers.

83. A telephonic-interface control system according to claim **72**, wherein sequence data indicative of calling order sequence is generated and stored for certain of said individual callers.

84. A telephonic-interface control system as defined in claim **72**, wherein said processing means selects said subset on-line.

85. A telephonic-interface control system according to claim **72**, wherein said identification data is provided on a ³⁰ ticket.

86. A telephonic-interface control system according to claim **85**, wherein said identification data and a machine readable indicia are provided on a ticket.

87. A telephonic-interface control system according to claim **86**, wherein machine readable indicia on said ticket is co-related to at least a portion of said identification data and said machine readable indicia is utilized for automatic entry of data for accessing purposes. ³⁵

88. A method for conducting a telephonic-interface ticket control operation for use with a communication facility including remote terminal apparatus for individual callers, including a voice communication device, and a digital input device in the form of an array of alphabetic numeric buttons for providing identification data, comprising the steps of:

providing dialed number identification signals automatically from the communication facility (DNIS) to provide digital identification data indicating a called number, wherein said called number is indicative of an interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS) and also providing calling number identification signals automatically from the communication facility to identify a calling number, the calling number identification signals used to control at least a part of the telephonic-interface ticket control operation;

assigning at least one predetermined limit on access to said interactive call processing format;

providing an identification number on a ticket, said identification number entered by each individual caller via said digital input device to access said interactive call processing format until said at least one predetermined limit is reached and providing visual indicia on said ticket illustrative of a specific theme from a plurality of different themes and providing a name or a numerical value on said ticket associated with said specific theme; ⁶⁰

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storing data indicative of an extent of access accomplished for said identification number entered by each individual caller;

testing said data indicative of said extent of access accomplished against said at least one predetermined limit on access to determine if said at least one predetermined limit on access is reached and if said at least one predetermined limit on access is reached by a particular caller, communication with the caller is either terminated or transferred to an interface terminal for communication with an operator;

providing a distinct indicia associated with said ticket; prompting said individual callers via a voice generator to enter data;

storing at least certain of said data responsive to said prompting step; and

co-relating said distinct indicia to at least a portion of said identification number. ¹⁵

89. A method according to claim **88**, further comprising the step of:

processing at least certain of said data responsive to said step of prompting.

90. A method according to claim **89**, further comprising the steps of:

receiving calling number identification signals automatically provided by the communication facility; and utilizing at least a part of the calling number identification signals to control at least a part of the processing. ²⁵

91. A method according to claim **88**, further comprising the step of:

concealing at least a portion of said identification number. ³⁰

92. A method according to claim **88**, further comprising the step of:

applying an obscuring material to said identification number. ³⁵

93. A method according to claim **88**, wherein said distinct indicia associated with said ticket, being machine readable indicia on said ticket. ⁴⁰

94. A method according to claim **88**, further comprising the step of:

utilizing said indicia which is machine readable for automatic entry of data for accessing related stored information including at least a portion of said identification number. ⁴⁵

95. A method according to claim **94**, wherein said machine readable indicia is a bar code.

96. A method according to claim **88**, further comprising the step of:

recording additional data provided by callers in the form of callers' credit card numbers. ⁵⁰

97. A method according to claim **88**, wherein said testing step further includes testing digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility, said testing of the calling number identification data to limit or prevent access to said interactive call processing format. ⁵⁵

98. A method according to claim **88**, wherein access is limited based upon a limited dollar value. ⁶⁰

99. A method according to claim **88**, wherein at least certain digits of said identification data entered by each individual caller indicate a select telephone subformat. ⁶⁵

100. A method according to claim **88**, wherein said at least one predetermined limit on access is indicative of a number of uses.

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101. A method according to claim 88, wherein said ticket bears both said name and said numerical value associated with said specific theme.

102. A method for conducting a telephonic-interface ticket control operation for use with a communication facility including remote terminal apparatus for individual callers, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, comprising the steps of:

providing dialed number identification signals automatically from the communication facility (DNIS) to provide digital identification data indicating a called number, wherein said called number is indicative of an interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS) and also providing calling number identification signals automatically from the communication facility to identify a calling number, the calling number identification signals used to control at least a part of the telephonic-interface ticket control operation;

assigning at least one predetermined limit on access to said interactive call processing format;

providing an identification number on a ticket, said identification number entered by each individual caller via said digital input device to access said interactive call processing format until said at least one predetermined limit is reached and providing visual indicia on said ticket illustrative of a visual theme from a plurality of different visual themes and providing a name or a numerical value on said ticket associated with said specific tickets;

storing data indicative of an extent of access accomplished for said identification number entered by each individual caller;

testing said indicative of said extent of access accomplished against said at least one predetermined limit on access to determine if said at least one predetermined limit on access is reached and if the one predetermined limit access is reach by a particular caller, communication with that caller is terminated or that caller is transferred to an interface terminal for communication with an operator;

providing a distinct indicia associated with said ticket; prompting said individual callers via a voice generator to enter data;

storing at least certain of said data responsive to said prompting step; and

providing indicia indicating a toll free number for callers to dial from a plurality of toll free numbers, where said indicia indicative of said toll free number is related to a specific one of said visual themes.

103. A method according to claim 102, wherein said ticket bears both said name and said numerical value associated with said specific ticket.

104. A method according to claim 102, wherein at least certain digits of said identification data entered by each individual caller indicate a select telephone subformat.

105. A method according to claim 102, wherein said at least one predetermined limit specifies a dollar amount.

106. A method according to claim 102, wherein said at least one predetermined limit specifies a number of uses.

107. A method according to claim 102, comprising: further testing to limit access during at least one predetermined interval of time.

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108. A method according to claim 102, further comprising the step of:

processing at least certain of said data responsive to said step of prompting.

109. A method according to claim 108, further comprising the steps of:

receiving calling number identification signals automatically provided by the communication facility; and utilizing at least a part of the calling number identification signals to control at least a part of the processing.

110. A method for conducting a telephonic-interface ticket control operation for use with a communication facility including remote terminal apparatus for individual callers, including a voice communication device, and a digital input device in the form of an array of alphabetic numeric buttons for providing identification data, comprising the steps of:

providing dialed number identification signals automatically from the communication facility (DNIS) to provide digital identification data indicating a called number from a plurality of called numbers and wherein said called number is indicative of said interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS) and wherein said called number is indicative of said interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS) and also providing calling number identification signals automatically from the communication facility to identify a calling number, the calling number identification signals used to control at least a part of the telephonic-interface ticket control operation;

assigning at least one predetermined limit on access to an interactive call processing format;

providing an identification number on a ticket, said identification number entered by each individual caller via said digital input device to access said interactive call processing format until said at least one predetermined limit is reached;

storing data indicative of an extent of access accomplished for said identification number entered by each individual caller;

testing said data indicative of said extent of access accomplished against said at least one predetermined limit on access to determine if said at least one predetermined limit on access is reached and further testing to limit access during at least one predetermined interval of time and if the at least one predetermined limit on access is reached by a particular caller, communication with that caller is terminated or that caller is transferred to an interface terminal for communication with an operator;

providing a distinct indicia associated with said ticket and co-relating said distinct indicia to at least a portion of said identification number;

providing visual indicia on said ticket illustrative of a specific theme from a plurality of themes and providing a specific name or a numerical value associated with said specific ticket;

prompting said individual callers via a voice generator to enter data; and

storing at least certain of said data responsive to said prompting step.

111. A method according to claim 110, further comprising the step of:

concealing at least a portion of said identification number.

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112. A method according to claim **111**, wherein said concealing step further comprises the step of:

applying an obscuring material to said identification number.

113. A method according to claim **112**, further comprising:

using a latex coating as said obscuring material.

114. A method according to claim **110**, wherein said distinct indicia associated with said ticket is a machine readable indicia on said ticket.

115. A method according to claim **110**, further comprising the step of:

utilizing said distinct indicia which is machine readable for automatic entry of data for accessing related stored information including said identification number.

116. A method according to claim **110**, further comprising the step of:

providing said identification data as indicia on said ticket along with said distinct indicia and an additional numerical indicia.

117. A method according to claim **110**, further comprising the step of:

recording additional identification data provided by the caller.

118. A method according to claim **110**, further comprising the step of:

recording said caller's credit card number.

119. A method according to claim **110**, wherein at least certain digits of said identification data entered by each individual caller indicate a select telephone subformat.

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120. A method according to claim **110**, further comprising the step of:

receiving digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

121. A method according to claim **120**, further comprising the step of:

storing said digital signals representing numbers associated with said remote terminal apparatus automatically provided by said communication facility.

122. A method according to claim **110**, wherein said testing step further includes testing digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility, said testing of the calling number identification data to limit or prevent access to said interactive call processing format.

123. A method according to **110**, wherein said at least one predetermined limit specifies a dollar limit.

124. A method according to claim **110**, wherein said at least one predetermined limit specifies a number of uses.

125. A method according to claim **110**, wherein said ticket bears both said name and said numerical value associated with said specific ticket.

* * * * *

EXHIBIT 23

PART 1 OF 2

(12) United States Patent
Katz(10) Patent No.: US 6,434,223 B2
(45) Date of Patent: *Aug. 13, 2002

(54) TELEPHONE INTERFACE CALL PROCESSING SYSTEM WITH CALL SELECTIVITY

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

(63) Continuation of application No. 08/480,185, filed on Jun. 7, 1995, now Pat. No. 5,974,120, which is a continuation of application No. 08/132,062, filed on Oct. 4, 1993, now Pat. No. 5,828,734, which is a continuation of application No. 07/779,762, filed on Oct. 21, 1991, now Pat. No. 5,251,252, which is a continuation of application No. 07/425,779, filed on Oct. 23, 1989, now Pat. No. 5,128,984, which is a continuation-in-part of application No. 07/312,792, filed on Feb. 21, 1989, now Pat. No. 5,073,929, which is a continuation-in-part of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 08/132,062, is a continuation-in-part of application No. 08/306,751, filed on Sep. 14, 1994, which is a continuation of application No. 08/047,241, filed on Apr. 13, 1993, now Pat. No. 5,351,285, which is a continuation of application No. 07/509,691, filed on Apr. 16, 1990, now abandoned, and a continuation-in-part of application No. 07/640,337, filed on Jan. 11, 1991, now abandoned.

done, which is a continuation of application No. 07/335, 923, filed on Apr. 10, 1989, now Pat. No. 6,016,334, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 07/509,691, is a continuation-in-part of application No. 07/260,104, filed on Oct. 20, 1998, now Pat. No. 4,930,150, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 08/132,062, is a continuation-in-part of application No. 07/335,923, filed on Apr. 10, 1989, now Pat. No. 6,016,334, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 27, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned.

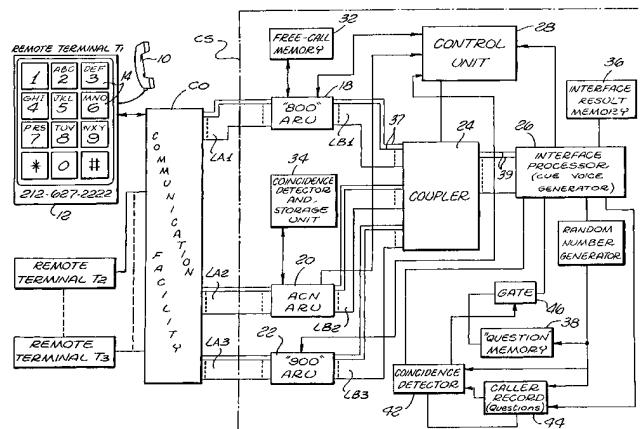
(51) Int. Cl.⁷ H04M 11/00
(52) U.S. Cl. 379/93.13, 379/93.02
(58) Field of Search 379/93.13, 88.01,
379/88.19, 88.2, 93.02, 93.03, 91.01, 91.02,
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(57) ABSTRACT

For use with a public telephone network CO incorporating a vast number of terminals Ti-Tn, a system CS limits and controls interface access to implement voice-digital communication for statistical processing. The system CS accommodates calls in different modes, e.g. "800", "900" or area code and incorporates qualifying apparatus to restrict against caller misuse. Alternative calling modes are used to reach an interface facility that also affords some control based on calling terminal identification, e.g. as by ANI equipment.

107 Claims, 2 Drawing Sheets

EXHIBIT 23

PART 2 OF 2

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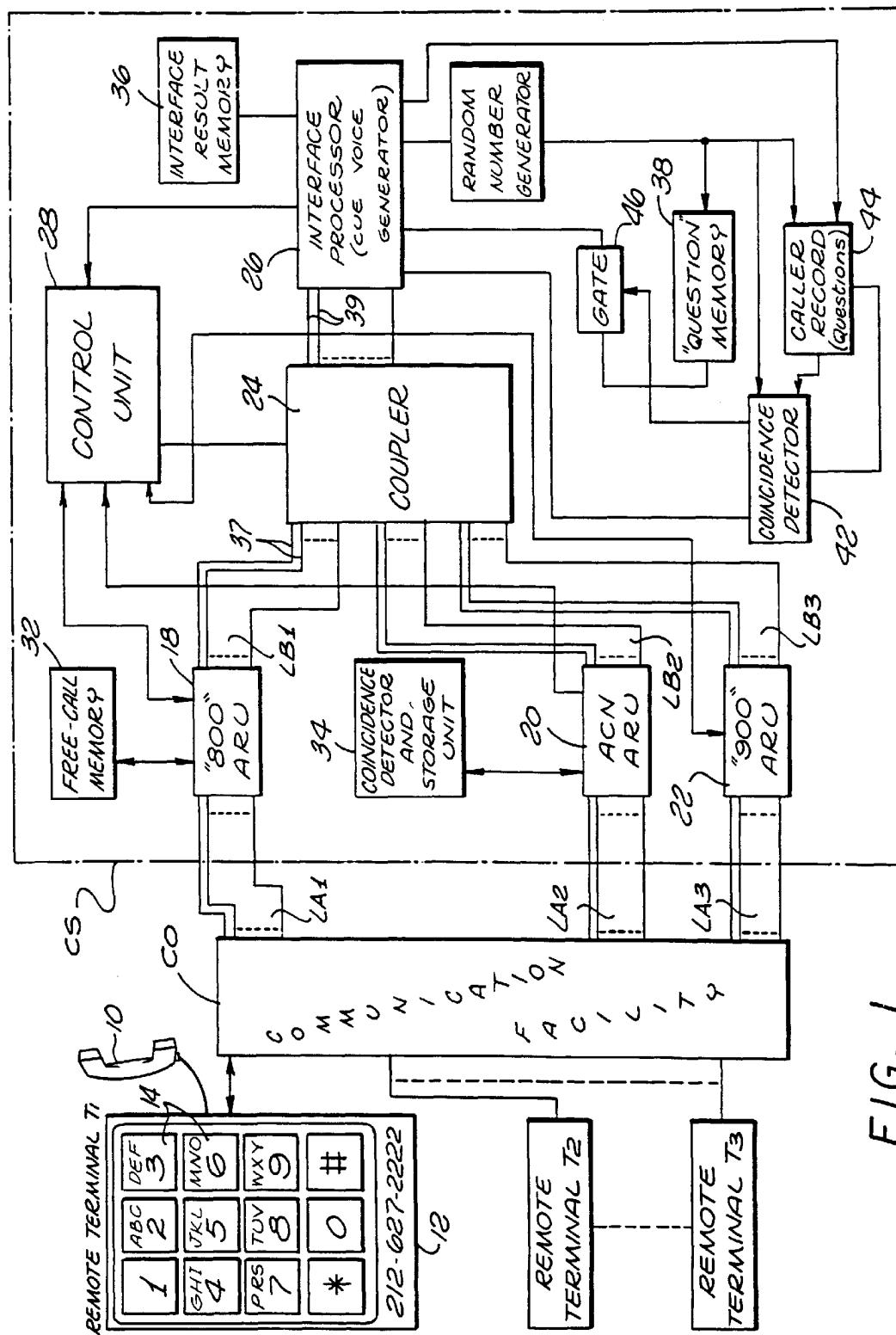


FIG. 1

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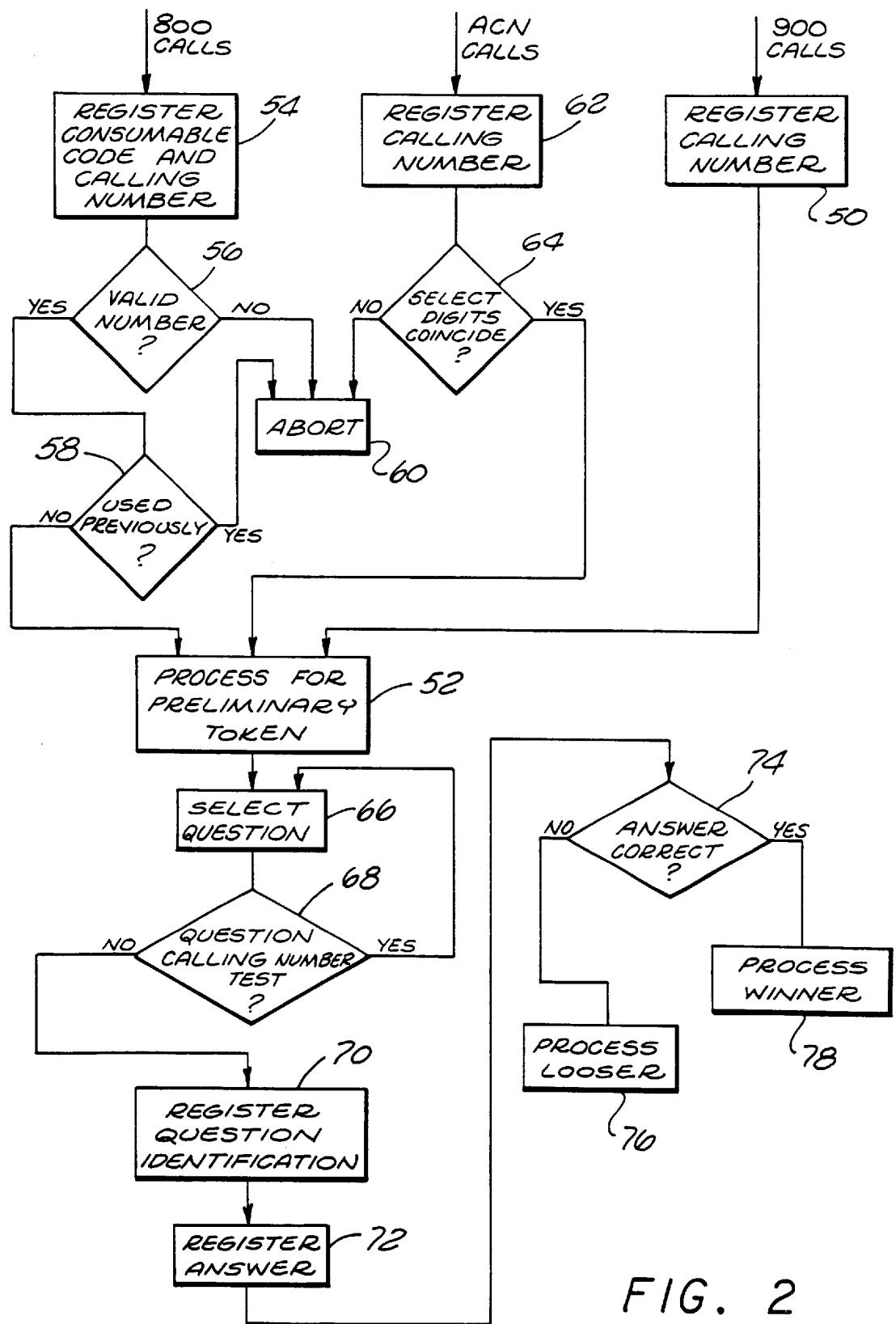


FIG. 2

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**TELEPHONE INTERFACE CALL
PROCESSING SYSTEM WITH CALL
SELECTIVITY**

RELATED SUBJECT MATTER

This is a continuation of application Serial No. 08/480, 185 filed on Jun. 7, 1995, now U.S. Pat. No. 5,974,120 and entitled "Telephone Interface Call Processing System With Call Selectivity," which is a continuation of application Ser. No. 08/132,062 filed on Oct. 4, 1993, and entitled "Telephone Interface Call Processing System With Call Selectivity," now U.S. Pat. No. 5,828,734, which is a continuation of application Ser. No. 07/779,762 filed on October 21, 1991, and entitled "Telephone Interface Call Processing System With Call Selectivity," now U.S. Pat. No. 5,251,252, which is a continuation of application Ser. No. 07/425,779 filed on Oct. 23, 1989, and entitled "Telephone Interface Call Processing System With Call Selectivity," now U.S. Pat. No. 5,128,984, which is a continuation-in-part of application Ser. No. 07/312,792 filed on Feb. 21, 1989, and entitled "Voice-Data Telephonic Control System," now U.S. Pat. No. 5,073,929, which was a continuation-in-part of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which was a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned.

Also, said application Ser. No. 08/132,062 is a continuation-in-part of application Ser. No. 08/306,751 filed on Sep. 14, 1994, and entitled "Multiple Format Telephonic Interface Control System," which is a continuation of application Ser. No. 08/047,241 filed on Apr. 13, 1993, and entitled "Multiple Format Telephonic Interface Control System," now U.S. Pat. No. 5,351,285, which is a continuation of application Ser. No. 07/509,691 filed on Apr. 16, 1990, and entitled "Multiple Format Telephonic Interface Control System," now abandoned and a continuation-in-part of application Ser. No. 07/640,337 filed on Jan. 11, 1991, now abandoned, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 7/335,923 filed on Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 6,016,344, which is a continuation of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned, said application Ser. No. 07/509,691 filed on Apr. 16, 1990, now abandoned, is a continuation-in-part of application Ser. No. 07/260,104 filed on Oct. 20, 1988, and entitled "Telephonic Interface Control System," now U.S. Pat. No. 4,930,150, which is a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and

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entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned. Also, said application Ser. No. 08/132,062 is directly a continuation-in-part of application Ser. No. 07/335,923 filed on Apr. 10, 1989, now U.S. Pat. No. 6,016,344 and entitled "Telephonic-Interface Statistical Analysis System," which is a continuation of application Ser. No. 07/194,258 filed on May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. §120.

**BACKGROUND AND SUMMARY OF THE
INVENTION**

Recent years have seen a considerable growth in the use of telephonic communications. For example, in various applications, telecommunications applications have expanded to accommodate voice-digital interfaces between computer apparatus and callers at remote telephone terminals. For example, by actuating the push buttons at a remote telephone terminal, a caller controls a computer apparatus to provide various entertainment or information. In using such a system, a caller might telephone a financial service and selectively actuate the telephone key panel to receive information on specific stocks or bonds.

Digital interface systems also have been implemented to utilize digital signals provided independently of the caller's actions. For example, the so-called "ANI" telephone equipment provides digital signals indicating a caller's telephone number. Equipment designated "DNIS" is similarly available to indicate the called number. Thus, digital signals may be provided telephonically to a system associated with individual calling terminals as for identification or other use.

Telephonic games and contests are among the various applications that have been recognized for implementation with telephone interface systems. Such games and contests may be variously presented, as in cooperation with an advertising program for a product or in a lottery format. Generally with respect to such applications, various call modes might be utilized.

Essentially, three telephonic calling modes or services are in widespread use. Specifically, caller-charge or "900" service (including "976" calls) involves a charge to the caller for each call. The "900" calling mode is useful for implementing games and contests with telephone interface systems; however, certain problems are encountered. Specifically, certain telephone terminals, e.g. pay phones, do not accommodate "900" service. Also, with respect to certain forms of games and contests, it is important to offer members of the public an alternative "free" method of participation. In general, the system of the present invention may be employed to implement "900" calling modes while accommodating "free" participation with reasonable control.

Telephone calls may be accommodated without charge using "800" service or calling mode. Generally, the "800" calling mode accommodates free calls by callers in various areas to a particular station incurring the charges. In most applications, it is important to regulate the use of the "800"

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calling mode. Another calling mode is the traditional method of calling, involving area-code numbers which also includes calls placed within a given area code which do not usually involve a specific charge and usually do not require dialing the area code. One of the problems associated with using the area-code calling mode for interface systems is the vast number of calls. For example, even in association with an advertising campaign, inviting members of the general public to participate in a free contest or game by telephone may prompt an overwhelming response. Accordingly, a need exists for a practical system to control and limit calls to an interface service in the traditional free area-code number mode.

Another aspect of telephonic-interface contests involves zealous or obsessive participants. For example, in a quiz contest, a zealous person might call repeatedly, researching answers to given questions until ultimately a question is repeated. At that time, the caller is ready with an answer and has an unfair advantage in the contest. Thus, a need exists for control within the interface system.

In general, the system of the present invention involves a telephone call processing system for receiving calls from a multitude of terminals in different call modes and for processing calls, as to a game or contest format, with means to limit repeat-call advantages. In a disclosed form, the system implements three calling modes to facilitate various formats while accomplishing certain protection both with regard to the calling mode and contest formats.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting biting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention; and

FIG. 2 is a flow diagram of an operating format of the system of FIG. 1.

DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENT

As required, a detailed illustrative embodiment of the present invention is disclosed herein. However, telephone techniques, physical communication systems, data formats and operating structures in accordance with the present invention may be embodied in a wide variety of forms and modes, some of which may be quite different from those of the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely representative, yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote terminals T1-TN (telephone instruments) are represented (left). The terminals T1-TN may be functionally similar and accordingly only the terminal T1 is shown in any detail. The indicated terminals T1-TN represent the multitude of telephone terminals existing in association with a communication facility CO which may comprise a comprehensive public telephone network.

The communication facility CO, accommodating the individual terminals T1-TN, is coupled to a central processing station CS generally indicated within a dashed-line block. In the station CS, to illustrate operating aspects of the present

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invention, calls are selectively accepted and interfaced so as to accomplish a desired operating format, for example a contest or game.

Generally, calls from the individual terminals T1-TN might be in any of three modes, i.e. the "800" mode, the "900" mode or the area-code mode (traditional area code plus number or local number dialing). In the disclosed illustrative system, depending on individual calling modes, calls are selectively accepted for interface processing.

Generally, the interface format accommodates "900" calls with supplemental "800" calls to accommodate both "free" access and all types of telephone terminals. In the disclosed embodiment, calls in the "800" mode are restricted in accordance with prearranged limitations. Furthermore, calls in the area-code mode (from all areas), the 800 mode and 900 mode may be limited to callers having a station number containing a predetermined digit sequence.

For example, calls might be restricted to those from terminals having a telephone number ending in the digits "234".

The processing station CS also is controlled to limit the effectiveness of zealous callers. For example, in a contest format, callers may be quizzed with questions randomly drawn from an inventory. In accordance herewith, questions are not repeated to individual telephone terminals T1-TN. Thus, some control is imposed on an aggressive caller who might otherwise be given two opportunities to answer the same question.

Considering the system of FIG. 1 in greater detail, the exemplary telephone terminal T1 includes a handpiece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of individual push buttons 14 in a conventional configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus. During an interface operation, as disclosed in detail below, the caller is queued or prompted vocally through the handpiece 10 (earphone) to provide digital responses using the buttons 14.

At this stage, some specific aspects of the communication interface are noteworthy. Essentially, as a result of telephonic dialing at one of the terminals T1-TN, the communication facility CO couples the select terminal to an audio response unit. Specifically, to illustrate various aspects, three separate audio response units are provided in the station CS to accept calls in the three distinct modes. That is, an audio response unit 18 receives calls in the "800" mode. An audio response unit 20 receives calls in the area-code dialing mode, and an audio response unit 22 receives calls in the "900" dialing mode.

It will be understood that although three separate audio response units are illustrated, systems incorporating the principles of the present invention may well incorporate various numbers of audio response units for each calling mode, with each audio response unit having the capability to accommodate a substantial number of calls as indicated by the lines from the communication facility CO in FIG. 1. Alternatively, a single composite unit might be utilized. Also, the mode or aspects of the described embodiment might well be implemented singly or in various combinations. Herein, for purposes of explanation, calls are treated individually and processed accordingly through the three audio response units 18, 20 and 22.

Generally, the audio response units 18, 20 and 22 connect callers at remote terminals T1-TN from the communication facility CO through a coupler 24 (FIG. 1, station CS, center) to an interface processor 26. Both the coupler 24 and the

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processor 26 are connected to a control unit 28 that is also connected to the audio response units 18, 20 and 22. Accordingly, with overall supervision by the control unit 28, the audio response units 18, 20 and 22 answer and preliminarily qualify callers from the terminals T1-TN for connection through the coupler 24 to the interface processor 26.

Upon completion of an interface connection in the disclosed embodiment, a contest format is executed by vocally prompting callers to respond with digital data. At this point, it is noteworthy that the communication facility CO also provides identification signals to the audio response units 18, 20 and 22. Specifically, digital identification signals representing numbers associated with the calling terminals T1-TN are provided by "ANI" equipment independent of any action by the caller. In the event "ANI" equipment is not available, callers may be vocally prompted to provide the digital representations by selectively depressing the buttons 14.

The telephone communication facility CO also may provide digital signals indicating the called number. Generally, such a capability involves equipment designated "DNIS". The capability may be useful in various embodiments of the present system, as to distribute calls from a single equipment as mentioned above.

Pursuing the exemplary structure of FIG. 1 in still greater detail, the communication facility CO provides three sets of trunks or lines LA1, LA2 and LA3 respectively coupled to the audio response units 18, 20 and 22. From the audio response units 18, 20 and 22, sets of lines LB1, LB2 and LB3 are connected to the coupler 24. Under control of the control unit 28, the coupler 24 connects individual lines 37 of the sets LB1, LB2 and LB3 to the processor 26 through lines 39.

Generally, the audio response units 18, 20 and 22 may take the form of well known telephonic structures with the capability to "answer" calls and interface callers in a preliminary way. Each of the units 18, 20 and 22 incorporate a voice generator along with some basic programmable logic capability.

The audio response unit 18 is coupled to a free-call memory 32. Generally, the unit 18 in cooperation with the memory 32 operates with the control unit 28 to qualify acceptable calls in the "800" mode.

The audio response unit 20 is connected to a select-number coincidence detector 34. These structures along with the control unit 28 test area-code mode calls. The audio response unit 22 accepts calls without initial qualification.

The system of the disclosed embodiment selectively qualifies callers depending on their calling mode. Additionally, the system responds to caller identification to enhance contest equity.

Generally, the interface processor 26 poses questions to calling contestants and stores the resulting answers in a result memory 36. Questions given to contestants are selected from a memory 38 by a random number generator 40. Essentially, the memory 38 contains an inventory of questions addressable by numbers provided by the random number generator 40. The address numbers from the generator 40 are also supplied to a coincidence detector 42 that also receives the address numerals of questions previously presented to a specific caller from a record 44. Thus, before a question is presented to a caller, the number of the calling terminal is checked to assure that the same question has not previously been posed to a caller at that terminal.

If the coincidence detector 42 clears the current question as not being repetitive, a gate 46 is qualified and the question

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is supplied from the memory 30 to the interface processor 26. A voice generator within the interface processor 26 then provides signals through a designated line 39, the coupler 24, a line 37, one of the audio response units and the communication facility CO to the connected remote terminal. As a result, the caller hears a simulated voice question. The answer is provided by the caller actuating the buttons 14 at the calling terminal. In that regard, the question may be in a multiple choice or true-false format to accommodate simple push button actions at the terminal.

In view of the above description of structural elements in the disclosed embodiment, a comprehensive understanding of the system may now best be accomplished by assuming certain operating conditions and describing the resulting operations.

Accordingly, assume that the system CS is programmed to accommodate a relatively simple game format, that is, a sponsored contest for the promotion of a product, e.g. the XYZ Widget. Further assume the contest is of limited participation based either upon: the payment of a token fee ("900" calling mode), prearranged participation ("800" calling mode), lottery selection (area-code calling mode) or lottery selection in combination with either 800 or 900 calling modes. Considering exemplary possibilities of the format, the XYZ Widget might be advertised with an invitation to participate via the "900" calling mode. Alternatively, participants might be variously qualified as by select notification; however, in the exemplary format, such participants would incur a token charge imposed through "900" telephonic service. To consider an example, an offering might be stated: "If your last three phone digits are 972 you may call, 1) if you wish, call 1 900 XXXX972 (\$0.95 service charge) provided your last three phone digits are 972; 2) if you have written in for a 'free to enter' you can use the one-time PIN number provided your last three phone digits are 972. In this case you can use the 'free' 800 number provided to you with your PIN number."

As indicated above, some telephone terminals do not accommodate "900" calling mode. Also, under certain circumstances, it is important to afford members of the public "free" access to participate in various games or contests. For example, such participation might be arranged by mail or other communication to provide a participant with a limited-use (i.e. one) qualification number. With use, the numbers are stored in the memory 32 and the list is checked subsequently to avoid repeat use.

A third class of contest participants might be considered lottery winners. For example, the sponsor might televise a drawing of three decimal digits to provide a sequence of three numbers. The three numbers might identify "winning" or "entitled" participants by corresponding to the last three numbers (digits) of their telephone number. For example, the drawing of the numbers "257" would entitle a single call participation from any of the telephone terminals T1-TN designated by a number, the last three digits of which are "257".

In an exemplary contest format, participants might be asked a few test questions (for minor prizes and the ability to participate in a lottery). Of course, a vast variety of possibilities exist; and in that regard, interim prizes may be awarded to participants as the format proceeds from the initial call to the ultimate prize. At the present point, it is important to appreciate that the system accommodates participants using various telephone call modes with select qualification to participate in an interface format utilizing voice prompt and push-button digital communication. In

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accordance with the described example, the sponsor invites participants to enter using "900" calling mode service. As a part of such an invitation, persons are advised that "free" entry or participation may be gained by sending a self-addressed envelope to receive an entry number, e.g. eight digits, for use via "800" calling mode service. In the disclosed embodiment, the eight-digit numeral is coded for verification. Of course, numerous possibilities exist. As a simple example the second and sixth digits of the number might have a specific sum, e.g. seven or seventeen. That is, the second and sixth digits might be: three and four, five and two, six and one, seven and zero, nine and eight and so on. A qualifying number would be: "34726313", the second and sixth digits being four and three, respectively.

With the arrangements completed for calling entries in the "900" and "800" mode, the contest might operate for several days before being opened to area-calling participants. That is, the area-calling mode might be available only after a televised drawing entitling participation from a select group of telephone numbers for a limited period of time.

In view of the above assumptions and descriptions, consider now the operation of the system as depicted in FIG. 1 in relation to the process diagram of FIG. 2. That is, assume the system of FIG. 1 is implemented and programmed to accommodate the exemplary operations as will now be described with reference to the process diagram of FIG. 2.

First, suppose a caller at the terminal T1 places a call in the "900" mode in response to an advertisement by a sponsor promoting XYZ Widgets. Perhaps the caller will receive at least a token gift and might qualify for a major lottery prize.

The assumed call involves the caller actuating the buttons 14 as for example to input: "1 900 5558945". As a result, signals are provided to the communication facility CO resulting in a connection from the remote terminal T1 to the audio response unit 22. With the connection, the communication system CO also provides the audio response unit 22 with digital identification signals representative of the designation for remote terminal T1 ("212 627 2222"). The identification signals are provided by the ANI equipment within the communication facility CO and are registered by the audio response unit 22. The operation is illustrated as a process step in FIG. 2 by the block 50 (upper right) for "900" mode calls.

As suggested above, it may be desirable for a format to provide a token award to all callers in the "900" mode. Recognizing such particulars as possibilities, in the disclosed embodiment, calls in the "900" mode are passed through the audio response unit 22 (FIG. 1) and the coupler 24 to the interface processor 26. Accordingly, the interface processor 26 receives the calling number and processes the contest format as described in detail below.

The initial step of the format common to all call modes is represented by the block 52 in FIG. 2. However, as calls in all modes are processed similarly from that point, before proceeding with the explanation, the preliminary operations attendant other calling modes first will be explained.

As explained above, certain accommodations are made for participation in the "800" (caller free) mode. Accordingly, assume a caller at the terminal T1 has been given an identification number: "34726313" for use in the "800" mode. Accordingly, the caller dials a number, e.g. "800 555 3478", actuating the terminal T1 and the communication facility CO to provide a connection with the audio response unit 18. With communication, the audio response unit actuates an internal voice generator prompting the caller to key in his assigned number, "34726313". As the digits of

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the number are keyed in by the caller, they are supplied from the audio response unit 18 to the control unit 28 and the free-call memory 32.

Within the control unit 28, logic is provided for verifying the identification number as proper. In accordance with the simple example explained above, the control unit 28 would simply sum the second and sixth digits to test for a total of "7". The coincidence test is represented by the query block 56 in FIG. 2. As indicated above, various codes and verification techniques are well known along with the apparatus for verifying assigned numbers.

If the control unit 28 validates the qualification number "34726313", it is recorded in the free-call memory 32 for future checking against repeat use. Accordingly, each call in the "800" mode also involves a check or test from the audio response unit 18 to the memory 32 to determine whether or not the assigned qualification number has been previously used. The previous-use test is illustrated as a process step by the query block 58 in FIG. 2.

If the control unit 28 determines the qualification number to be invalid or the memory 32 reveals the number has been previously used, the communication is aborted by the audio response unit 18. For example, the audio response unit 18 may be actuated to provide simulated audio signals carrying a message terminating the communication. For example, the caller might be advised: "The number you have provided is not valid. Consequently, your participation cannot be accepted on that basis."

If the entered number is valid and has not been previously used, the tests indicated by the query blocks 56 and 58 (FIG. 2) are positive and the process again proceeds to the common step as indicated by the block 52, e.g. as to receive a token gift.

As indicated above, a third possibility for contest participation involves calling in the area-code mode. While numerous format possibilities exist, as suggested above, access for callers in the area-code mode might be limited to a relatively short period of time. For example, a television program advertising the XYZ Widget might include a drawing to select the telephone terminals from which callers may participate for a period of twenty-four hours. As indicated above, the drawing might identify the last three digits of telephone numbers for the approved terminals.

Following a relatively short time (e.g. one day) during which area-code callers may enter the contest, the contest might be concluded with the ultimate winner or winners determined. In any event, assume the presence of a caller at the terminal T2 with an approved telephone number, i.e. "212 627 2257". Somewhat as explained above with respect to other calling modes, keying operations by the caller at the remote terminal T2 result in a connection through the communication system CO to the audio response unit 20. As previously, the communication facility CO provides digital signals to the audio response unit 20 indicating the calling number (ANI). Thus, the calling number is registered as indicated by the block 62 in FIG. 2. As previously, in the event ANI equipment is not operative to serve the remote terminal T2, then the caller may be asked to key in his telephone number for subsequent verification.

From the audio response unit 20, the caller's number is supplied to the coincidence detector and storage unit 34 for a two-stage test. A first test simply seeks a coincidence between the approved number sequence (three digits) and the last three digits of the calling number. In the example, the last three digits of the calling number ("257") are compared with the select digit sequence, "257". The test is indicated by the query block 64 in FIG. 2.

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As a secondary test, the unit 34 may check a record of previous use. Thus, the unit 34 simply implements test logic to accomplish these comparison-step operations with structures as well known in the prior art.

If the tests are negative, as indicated by the query block 64, the communication is aborted as indicated by the block 60. Alternatively, a favorable test again directs the system to proceed to the step of block 52 at which the process enters a common phase for all calling modes.

With the entry of a call into the common phase, the line carrying the call is connected through the coupler 24 (FIG. 1) to the interface processor 26. That is, depending on the call mode, the call is passed through one of the audio response units 18, 20 or 22 and the coupler 24 to the interface processor 26. Note that as indicated above, each of the audio response units 18, 20 and 22 is capable of accommodating a large number of asynchronous calls. Similarly, the coupler 24 is capable of connecting lines from the audio response units 18, 20 and 22 (LB1, LB2 and LB3 respectively) to the interface processor on an individual basis through lines 37 and 39.

The interface processor 26 may comprise a relatively substantial computing capability for processing many individual calls with programmed variations. The processing operation is illustrated in FIG. 2 beginning with the block 52. However, note that as the interface processor 26 receives the telephone number identifying a calling terminal (ANI) reference may be made to a data bank. Therefore, the operation might involve reference to substantial data on a caller. Accordingly, a basis exists for several process variations accommodated by data from a bank. The block 52 represents such possibilities as well as further informing or processing callers.

With the receipt of a call at the interface processor 26, a voice generator may be actuated to specifically inform a caller, depending upon the specific format employed. Essentially, digital signals are provided to actuate a voice generator within the processor 26. Accordingly, an audio message is provided through the coupler 24, the associated audio response unit, and the communication facility CO to the connected remote terminal. Thus, the caller may be further informed or cued.

In the disclosed embodiment, concurrently with the operation of further informing the caller, the interface processor 26 actuates the random number generator 40 to provide a random address for the question memory 38. The process step is illustrated in FIG. 2 by the block 66.

The random number (identifying a question in the memory 38) is also provided to the coincidence detector 42 to test for the previous use of the question to the calling terminal. In that regard, the interface processor 26 provides the caller telephone number (ANI) to the caller record 44 which may simply take the form of a look-up table addressed by calling numbers and revealing the identification of previous questions propounded. The addresses of questions previously recorded for a calling number are supplied to the coincidence detector 42 for comparison with the current tentative question identification number. The process step is illustrated by the query block 68 in FIG. 2.

If the tentative question has been previously used for the calling terminal, a signal is provided from the coincidence detector 42 to the interface processor prompting a repeat operation by the random number generator 40 to select another question.

Alternatively, if the tentative question is not a repeat, then the coincidence detector 42 qualifies the gate 46 and the

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tentative question is supplied to the interface processor 26 for actual use. Note that upon the occurrence of an approved question, the coincidence detector also supplies a signal to the call record 44 which records the identification number of the question. The process step is illustrated in FIG. 2 by the block 70.

With the provision of signals representing a question through the gate 46 to the interface processor 26, the internal voice generator is actuated to propound the question to the caller. Recognizing the vast possibilities for contest formats, one or more rather difficult questions might be propounded to isolate lottery participants. Alternatively, a relatively easy question may be propounded as a minor obstacle to participation in the final phase of the contest. In any event, as prompted or cued, the caller responds using the buttons 14 and the response is registered for testing within the interface processor 26. The process steps are indicated by the block 72 and the query block 74 in FIG. 2. The results of the tests are then stored in the interface result memory 36. Note that in the interests of human perception, a printed record may be developed concurrently with the qualification of lottery participants.

Final processing to determine a winner or winners may involve any of various operations as a drawing, an event, and so on. Accordingly, as indicated by the blocks 76 and 78, final determinations are made of winners and losers with predetermined prize allocations. Thus, the system of the present invention enables effective regulation and control of interfaces between persons at telephone stations and a central processing apparatus. Calls in various modes are accommodated with appropriate tests, and interface data (e.g. test questions) are qualified.

In view of the above descriptions, it will be apparent that the disclosed embodiment is susceptible to considerable modification in the implementation of the present invention in conjunction with a telephone system to accommodate caller interface operations. Although the disclosed embodiment is directed to a contest, it will be apparent that aspects of the system may be variously embodied to accommodate any of a variety of telephone interface operations. Furthermore, it will be apparent that while the disclosed embodiment comprises specific elements and configurations, any of a variety of structures might well be utilized. Accordingly, the scope hereof is deemed to be as set forth in the claims below.

What is claimed is:

1. A telephone call processing system for receiving calls through a telephone communication facility from a multitude of terminals for processing in a select interface format wherein callers are cued by voice signals supplied to said multitude of terminals and respond with digital signals, as by actuating push to said multitude of terminals and respond with digital signals, as by actuating push buttons at said multitude of terminals, said system receiving from the telephone communication systems digital signals indicative of DIS, said telephone call processing system comprising:

means for selectively receiving calls from said multitude of terminals in a plurality of call modes to establish telephone communication with a select subset of callers utilizing calling number identification signals automatically provided by the telephone communication facility, said select interface format selected by said digital signals indicative of DNIS;

means for receiving identification signals for said callers of said select subset;

means for individually cuing said callers of said select subset to provide digital signals that are entered by the

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callers, wherein at least certain of the cues and their responsive digital signals are a part of common processing operations to isolate a sub-subset of said callers; and

means for storing identification signals for said callers of said sub-subset.

2. A telephone call processing system according to claim 1, further comprising:

a random number generator utilized during the common processing operations for isolating said sub-subset of said callers.

3. A telephone call processing system for receiving calls through a telephone communication facility from a multitude of terminals for processing in a select interface format wherein callers are cued by voice signals supplied to said multitude of terminals and respond with digital signals, as by actuating push buttons at said multitude of terminals, said telephone call processing system comprising:

means for receiving calls from said multitude of terminals in at least two or more call modes and establishing telephone communication to select a subset of callers based upon online responses provided by said select subset of callers to questions provided via a voice generator of the telephone call processing system, said means for receiving calls receiving and utilizing automatic number identification signals associated with a calling terminal automatically provided by the telephone communication facility;

means for providing identification signals entered by said callers of said select subset; and

means for processing data relating to said callers of said select subset in accordance with common processing operations for calls received in the two or more call modes to isolate a sub-subset of said callers.

4. A telephone call processing system according to claim 3, further comprising:

a random number generator utilized during the common processing operations for isolating said sub-subset of said callers.

5. A telephone call processing system for receiving calls through a telephone communication facility from a multitude of terminals for processing in a select interface format wherein callers are cued by synthesized voice signals supplied to said multitude of terminals and respond with digital signals, as by actuating push buttons at said multitude of terminals, said telephone call processing system comprising:

means for selectively receiving calls from said multitude of terminals to establish telephone communication with a select subset of callers, said means for selectively receiving calls comprising means for receiving calls in a plurality of call modes including a toll free calling mode and a caller charge calling mode or an area code mode;

means for providing identification signals entered by said callers of said select subset;

means for individually cueing said callers of said select subset to prompt digital signals, wherein at least certain of the cues and their responsive digital signals are a part of common processing operations for the plurality of call modes to isolate a sub-subset of said callers; and

means for storing identification signals for said callers of said sub-subset.

6. A telephone call processing system for receiving calls through a telephone communication facility from a multitude of terminals for processing in an interface format

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wherein callers are cued by synthesized voice signals supplied to said multitude of terminals and respond with digital signals, as by actuating push buttons at said multitude of terminals, said telephone call processing system comprising:

means for receiving calls from said multitude of terminals and establishing telephone communication to select a subset of callers based upon online responses provided by said select subset of callers to questions provided by a voice generator of the telephone call processing system, said means for receiving calls comprising means for receiving calls in a plurality of call modes including an "800" toll free calling mode and a caller charge calling mode or an area code mode;

means for receiving identification signals entered by said callers of said select subset; and

means for processing data relating to said callers of said select subset in accordance with common operations for the plurality of call modes to isolate a sub-subset of said callers.

7. A process for receiving calls through a telephonic communication facility from a multitude of terminals in different call modes including a toll free call mode and an area code call mode and processing the calls in accordance with respective interface formats for the different call modes, wherein the process involves digital signals including digital signals provided by the multitude of terminals as for identification or data, comprising the steps of:

receiving calls in the toll free call mode and providing an interface format associated with the toll free call mode; providing an identification number to facilitate participation via the toll free call mode;

verifying the participation number for approval receiving calls in the area code mode and providing another interface format associated with the area code mode;

providing preliminary automated greetings specific to respective interface formats associated with the toll free call mode and the area code mode, prior to execution of at least certain common operations of the interface formats; and

concurrently processing the verified calls received in the toll free call mode and the calls received in the area code mode in accordance with at least certain common operations of the interface formats associated with the toll free and the area code call modes.

8. A process for receiving calls according to claim 7, wherein a data bank relating to a caller is accessed to reference data on a caller.

9. A process for receiving calls according to claim 7, wherein the respective interactive interface formats are associated with an information service.

10. A process for receiving calls according to claim 7, further comprising the steps of:

prompting callers calling from the multitude of terminals in the different call modes with multiple questions; and further receiving responses from the callers in the form of digital data developed by the multitude of terminals.

11. A process for receiving calls according to claim 10, further comprising the step of:

isolating a subset of callers based on the responses received from the callers.

12. A process for receiving calls according to claim 7, further comprising the steps of:

receiving the identification number in the form of a caller pin-number as digital signals provided by the multitude of terminals for identification; and

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wherein the verifying step includes testing to determine if the caller pin-number is eligible to participate.

13. A process for receiving calls according to claim 7, wherein the caller identification number is tested based on limited use.

14. A telephone call processing system according to claim 7, wherein the toll free call mode is an "800" call mode.

15. A process for receiving calls according to claim 7, further comprising the steps of:

prompting callers calling from the multitude of terminals in the different call modes with multiple questions; and further receiving responses from the callers in the form of digital data developed by the multitude of terminals to isolate a subset of callers.

16. A process according to claim 7, further comprising the step of:

receiving called number identification signals (DNIS) automatically provided by the telephonic communication facility at least for the calls in the toll free call mode and selecting the respective interface format under control of the called number identification signals (DNIS).

17. A process according to claim 16, further comprising the Step of:

testing the identification number to control for previous use under control of the called number identification signal.

18. A process according to claim 16, further comprising the step of:

testing the identification number to control for limited use based on a limited period of time under control of the called number identification signals.

19. A process according to 7, further comprising the step of:

receiving calling number identification data automatically by the telephonic communication facility.

20. A process according to claim 19, further comprising the step of:

controlling certain of the operations of at least one of the formats under control of at least certain of the calling number identification signals.

21. A process for receiving calls through a communication facility from a multitude of terminals in an 800 call mode for processing data in accordance with an identified one of a plurality of interface formats and involving digital signals including digital signals provided by the multitude of terminals for identification or data, the process comprising the steps of:

receiving calls in the 800 call mode wherein digital signals indicative of at least a first called number (DNIS) identify a first interface format;

receiving calls in the 800 call mode wherein digital signals indicative of a second distinct called number (DNIS) identify a second interface format;

receiving calling number identification signals automatically provided by the communication facility to indicate calling terminal numbers for certain of the multitude of terminals to verify on-line the calls received for at least one of the two distinct called numbers to provide verified calls;

processing calls received in the 800 call mode for the two distinct called numbers in accordance with preliminary operations of the first and second interface formats, wherein the preliminary operations compromise:

providing a distinct automated greeting under control of the digital signals (DNIS) to callers calling at least one

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of the two distinct called numbers associated with the first and second formats in the 800 call mode; and coupling the calls received in the 800 call mode for the two distinct called numbers wherein at least certain calls are verified calls for concurrent processing in accordance with common operations of the first and second interface formats.

22. A telephone call processing system according to claim 21, wherein the means for processing processes data provided by callers to update a databank relating to the callers.

23. A telephone call processing system according to claim 21, wherein the first response unit and the second response unit are incorporated within a single composite unit.

24. A process according to claim 21, further comprising the step of receiving caller data provided via the multitude of terminals and wherein verification of the calls received in the 800 call mode for at least one of the two distinct called numbers is based upon a test of the caller provided data based upon limited use.

25. A process according to claim 24, wherein the limited use is a one-time only use.

26. A process according to claim 24, wherein the caller provided data includes digital signals indicative of a personal identification number.

27. A process according to claim 24, wherein the limited use limits use by callers during a single period of time.

28. A process according to claim 24, wherein the caller provided data includes caller pin-number data, which is subject to limited use.

29. A process according to claim 24, further comprising the step of:

storing the caller provided data or the calling number identification signals and restricting the extent of access to the identified one of the plurality of interface formats based on at least one of caller provided data or calling number identification data.

30. A process according to claim 24, wherein the caller data provided is used to update data for the callers in a data bank relating to the callers.

31. A process according to claim 21, further including memory means for storing the digital signal.

32. A process according to claim 21, further comprising the step of:

providing at least one voice prompt to solicit a response in the form of data entered interactively by the callers calling one of the two distinct called numbers associated with the 800 call mode.

33. A process according to claim 32, wherein at least certain of the data entered interactively is stored.

34. A process according to claim 33, wherein the step of providing at least one voice prompt is initiated upon receiving calling terminal numbers associated with at least certain terminals.

35. A process according to claim 21, wherein the calling number identification signals associated with at least certain terminals are used to access a data bank relating to calls from the terminals.

36. A process according to claim 35, wherein the data bank is updated with data relating to the calling number identification signals.

37. A process according to claim 21, wherein the step of verifying includes the step of tallying calls placed to at least one called number in the 800 call mode up to a predetermined limit.

38. A process according to claim 21, wherein the calling number identification signals are tested based on limited use.

39. A process according to claim 21, wherein at least one of the plurality of interface formats is an on-line processing format in real-time.

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40. A process according to claim **21**, wherein the process includes multiple comparative processing operations at least a part of which occur during the common operations.

41. A process according to claim **21**, wherein the step of concurrent processing of calls includes the step of processing to isolate a subset of callers. 5

42. A process according to claim **21**, wherein at least one of the processing of interface formats is an information format.

43. A process according to claim **42**, wherein the information format is a financial information format.

44. A process according to claim **43**, wherein the financial information format includes provision of data on stocks and bonds.

45. A process according to claim **21**, further comprising: receiving data provided by the caller via the terminals; and

testing the caller provided data against stored data to determine approval for the caller.

46. A process according to claim **45**, wherein there is further testing of the caller provided data against a record of previous use. 20

47. A process according to claim **45**, wherein the testing step utilizes a coincidence detector and storage unit.

48. A process according to claim **21**, wherein both the first and second interface formats for the first and second 800 call modes are financial information formats.

49. A process according to claim **21**, further comprising the step of:

receiving and utilizing caller provided identification data or utilizing the calling number identifications signals to determine an appropriate cue for a caller.

50. A process according to claim **49**, wherein the appropriate cue for a caller is determined by avoiding a cue previously provided to a caller. 25

51. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode for processing data in accordance with distinct operating process formats and involving digital signals including called number identification signals (DNIS) automatically provided by the telephonic communication facility, the system comprising:

first response unit for receiving calls in the toll free call mode wherein the called number identification signals (DNIS) indicative of at least one of a plurality of distinct called numbers identifies one of the operating process formats;

voice generator means for prompting callers to enter data in response to at least one voice prompt wherein the data entered by the callers is used to update data for the callers in a database relating to the callers;

verification means for verifying at least the calls utilizing the one of the plurality of distinct called numbers in the toll free call mode received by the first response unit to provide verified calls based upon verifying caller entered identification data including caller personal identification data;

second response unit means for receiving calls in the toll free call mode wherein called number identification signals (DNIS) indicative of one other of the plurality of distinct called numbers identifies a different one of the operating process formats;

means for concurrently processing calls received by the first response unit means and the calls received by the

second response unit for concurrent processing of data in accordance with at least certain common operations of the operating process formats; and

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audio control unit for providing an automated greeting, prior to execution of the certain common operations, under the control of the called number identification signals (DNIS) to callers calling at least one of the distinct called numbers whereby the automated greeting is specific to the one of the plurality of distinct numbers.

52. A telephone call processing system according to claim **51**, wherein the verification means verifies the calls in the toll free call mode base upon a test of caller entered identification data based upon limited use. 10

53. A telephone call processing system according to claim **52**, wherein the limited use is a one-time only use.

54. A telephone call processing system according to claim **52**, wherein the limited use limits use by callers during a single period of time. 15

55. A telephone call processing system according to claim **51**, wherein the caller pin-number data is subject to limited use.

56. A telephone call processing system according to claim **51**, wherein digital signals representing calling terminal numbers associated with at least certain terminals are automatically provided by the telephonic communication facility. 20

57. A telephone call processing system according to claim **56**, further including memory means for storing the digital signals. 25

58. A telephone call processing system according to claim **56**, wherein the verification means tests the digital signals representing calling terminal numbers associated with at least certain of the multitude terminals that are automatically provided from the telephonic communication facility. 30

59. A telephone call processing system according to claim **51**, further including memory means for storing data and control means for restricting the extent of access to a select operating process format based on at least one of caller entered data or calling terminal data automatically provided by the telephonic communication facility. 35

60. A telephone call processing system according to claim **51**, wherein the voice generator means prompts responses to at least one voice prompt in the form of data interactively provided by the callers calling at least one of the distinct called numbers. 40

61. A telephone call processing system according to claim **60**, wherein at least one of the responses is stored. 45

62. A telephone call processing system according to claim **60**, wherein the voice generator means prompts responses to at least one question upon receiving calling terminal numbers associated with the multitude of terminals that are automatically provided by the telephonic communication facility. 50

63. A telephone call processing system according to claim **51**, wherein digital signals representing calling terminal numbers associated with at least certain terminals are automatically provided by the telephonic communication facility and are used to access a data bank relating to calls from the terminals. 55

64. A telephone call processing system according to claim **63**, wherein the data bank is updated with data relating to the calling terminal numbers. 60

65. A telephone call processing system according to claim **51**, wherein the verification means tallies calls placed to at least one of the toll free call mode distinct numbers up to a predetermined limit. 65

66. A telephone call processing system according to claim **51**, wherein the data entered by the callers is used to update data for the callers in a data bank relating to the callers. 70

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67. A telephone call processing system according to claim **51**, wherein at least one of the distinct operating process formats is an on-line processing format in real-time.

68. A telephone call processing system according to claim **51**, wherein the means for concurrently processing calls utilizes at least certain of multiple comparative processing operations as part of the common operations.

69. A telephone call processing system according to claim **51**, wherein the means for concurrently processing calls, isolates a subset of callers.

70. A telephone call processing system according to claim **51**, wherein at least one of the distinct operating process formats is a form of financial information format.

71. A telephone call processing system according to claim **70**, wherein the financial information format includes provision of data on stocks and bonds.

72. A system according to claim **51**, wherein the verification means tests the digital signals representing calling number identification signals associated with at least certain of the multitude of terminals for limited use.

73. A system according to claim **72**, wherein the caller entered data is tested against stored data for approval.

74. A system according to claim **72**, wherein there is testing of the caller entered data against a record of previous use.

75. A system according to claim **74**, wherein the testing utilizes a coincidence detector and storage unit.

76. A system according to claim **51**, wherein both the interface operating formats for the first response unit and the second response unit are financial information formats.

77. A system according to claim **51**, wherein the means for concurrently processing together with the voice generator means utilizes caller entered identification data or calling number identification signals to determine an appropriate cue for a caller.

78. A system according to claim **77**, wherein the appropriate cue is determined to avoid a cue previously provided to a caller.

79. A system according to claim **51**, further comprising: a third response unit for receiving calls in an area code mode.

80. A process for receiving calls through a communication facility from a multitude of terminals in an 800 call mode for processing data in accordance with an identified one of a plurality of interface formats and involving digital signals including digital signals provided by the multitude of terminals for identification or data, the process comprising the steps of:

receiving calls in the 800 call mode wherein digital signals indicative of at least a first called number (DNIS) identify a first interface format;

receiving calls in the 800 call mode wherein digital signals indicative of a second distinct called number (DNIS) identify a second interface format;

processing calls received in the 800 call mode for the two distinct called numbers in accordance with preliminary operations of the first and second interface formats, wherein the preliminary operations comprise at least the step of:

providing a distinct automated greeting voice prompt to callers calling at least one of the two distinct called numbers associated with the first and second formats in the 800 call mode;

receiving caller provided data entered by the callers and testing the caller entered data to verify on-line the calls received for at least one of the two distinct called numbers to provide verified calls; and

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coupling the calls received in the 800 call mode for the two distinct called numbers wherein at least certain calls are verified calls for concurrent processing in accordance with at least certain common operations of the first and second interface formats.

81. A process according to claim **80**, further comprising the step of:

receiving caller data provided via the terminals and wherein verification of the calls received in the 800 call mode for at least one of the two distinct called numbers is based upon a test of the caller provided data based upon limited use.

82. A process according to claim **81**, wherein the limited use is one-time only use.

83. A process according to claim **81**, wherein the caller provided data includes digital signals indicative a personal identification number.

84. A process according to claim **81**, wherein the limited use limits use by callers during a single period of time.

85. A process according to claim **81**, wherein the caller provided data includes caller pin-number data, which is subject to limited use.

86. A process according to claim **80**, further comprising the step of:

receiving digital signals representing calling number identification signals associated with at least certain terminals that are tested.

87. A process according to claim **86**, further comprising the step of:

storing the caller provided data or the calling number identification signals and restricting the extent of access to at least one of the first or second formats based on at least one of caller provided data or calling number identification data.

88. A process according to claim **87**, wherein at least one of the plurality of interface formats is an information format.

89. A process according to claim **88**, wherein the information format is a financial information format.

90. A process according to claim **89**, wherein the financial information format includes provision of data on stocks and bonds.

91. A process according to claim **80**, further comprising the step of:

providing at least one voice prompt to solicit a response in the form of data entered interactively by the callers calling at least one of two distinct called numbers associated with the 800 call mode.

92. A process according to claim **91**, wherein at least certain of the data entered interactively is stored.

93. A process according to claim **91**, wherein the step of providing at least one voice prompt is initiated upon receiving calling terminal numbers associated with at least certain terminals.

94. A process according to claim **80**, wherein calling number identification signals associated with certain terminals are received and used to access a data bank relating to calls from the certain terminals.

95. A process according to claim **94**, wherein the data bank is updated with data relating to the calling number identification signals.

96. A process according to claim **80**, wherein the testing step includes the step of tallying calls placed to at least one number of the toll free call mode up to a predetermined limit.

97. A process according to claim **80**, wherein the caller provided data is used to update data for the callers in a data bank relating to the callers.

98. A process according to claim **80**, wherein the calling number identification signals are tested based on limited use.

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99. A process according to claim **80**, wherein at least one of the plurality of interface formats is an on-line processing format in real-time.

100. A process according to claim **80**, wherein the process includes multiple comparative processing operations at least a process of which occur during the common operations.

101. A process according to claim **80**, wherein the step of concurrent further processing of calls includes the step of processing to isolate a subset of callers.

102. A process according to claim **80**, wherein the caller provided data is tested against stored data to determine approval for a caller. ¹⁰

103. A process according to claim **102**, wherein there is testing of the caller provided data against a record of previous use.

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104. A process according to claim **102**, wherein the testing step utilizes a coincidence detector and storage unit.

105. A process according to claim **80**, wherein both the first and second interface formats for the first and second 800 call modes are financial information formats.

106. A process according to claim **80**, further comprising the step of utilizing caller entered identification data or calling number identifications signals to determine an appropriate cue for a caller.

107. A process according to claim **106**, wherein the appropriate cue for a caller is determined by avoiding a cue previously provided to a caller.

* * * * *

EXHIBIT 24

PART 1 OF 2

(12) United States Patent
Katz(10) Patent No.: US 6,449,346 B1
(45) Date of Patent: *Sep. 10, 2002(54) TELEPHONE-TELEVISION INTERFACE
STATISTICAL ANALYSIS SYSTEM

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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93.28; 348/13, 6, 7, 12; 455/2, 3.1, 5.1,
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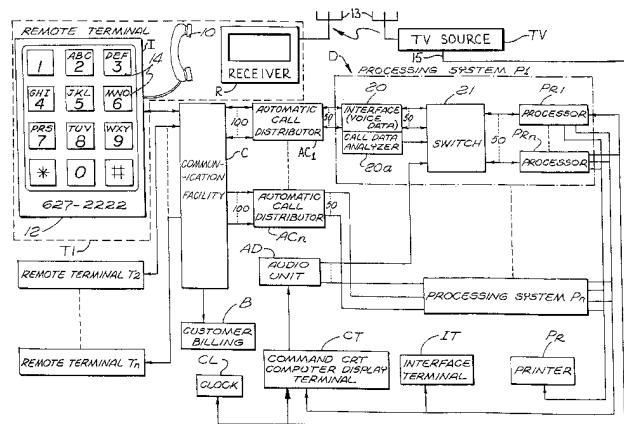
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(57)

ABSTRACT

A system D interfaces with a multiplicity of individual telephone-television terminals T1-Tn of a telephone-television network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

52 Claims, 6 Drawing Sheets



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EXHIBIT 24

PART 2 OF 2

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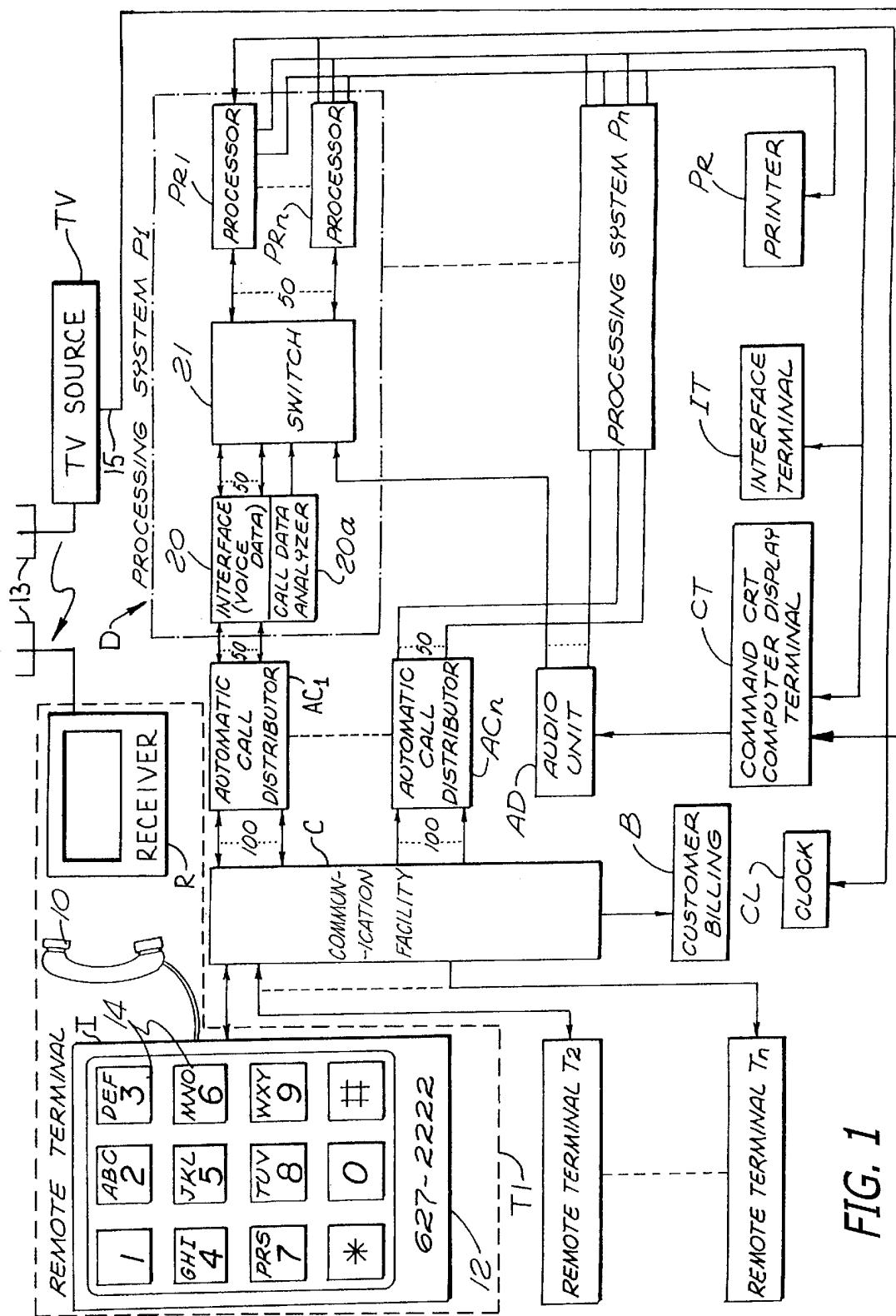


FIG. 1

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CALLER'S TELEPHONE NUMBER AND INITIALS	DATA:		CALL RECORD SEQUENCE	ASSIGNED DESIGNATION	64	66
	AGE.	WEIGHT-----PULSE				

627-2222-53 47 176 58 53 C1

FIG. 2

CARD TYPE	CARD #	CUST. EXP. DATE	#	NAME ADDRESS DATA	ITEM 1	COLOR SIZE CODE	142	144

130 132 134 136 138 1/04 140 142 144

FIG. 5

CALLER'S TELEPHONE NUMBER	USES/ MONTH	TIME	I.D. DATA	200	204	206	208	210

QUESTION ANSWERS DESIGNATION

FIG. 7

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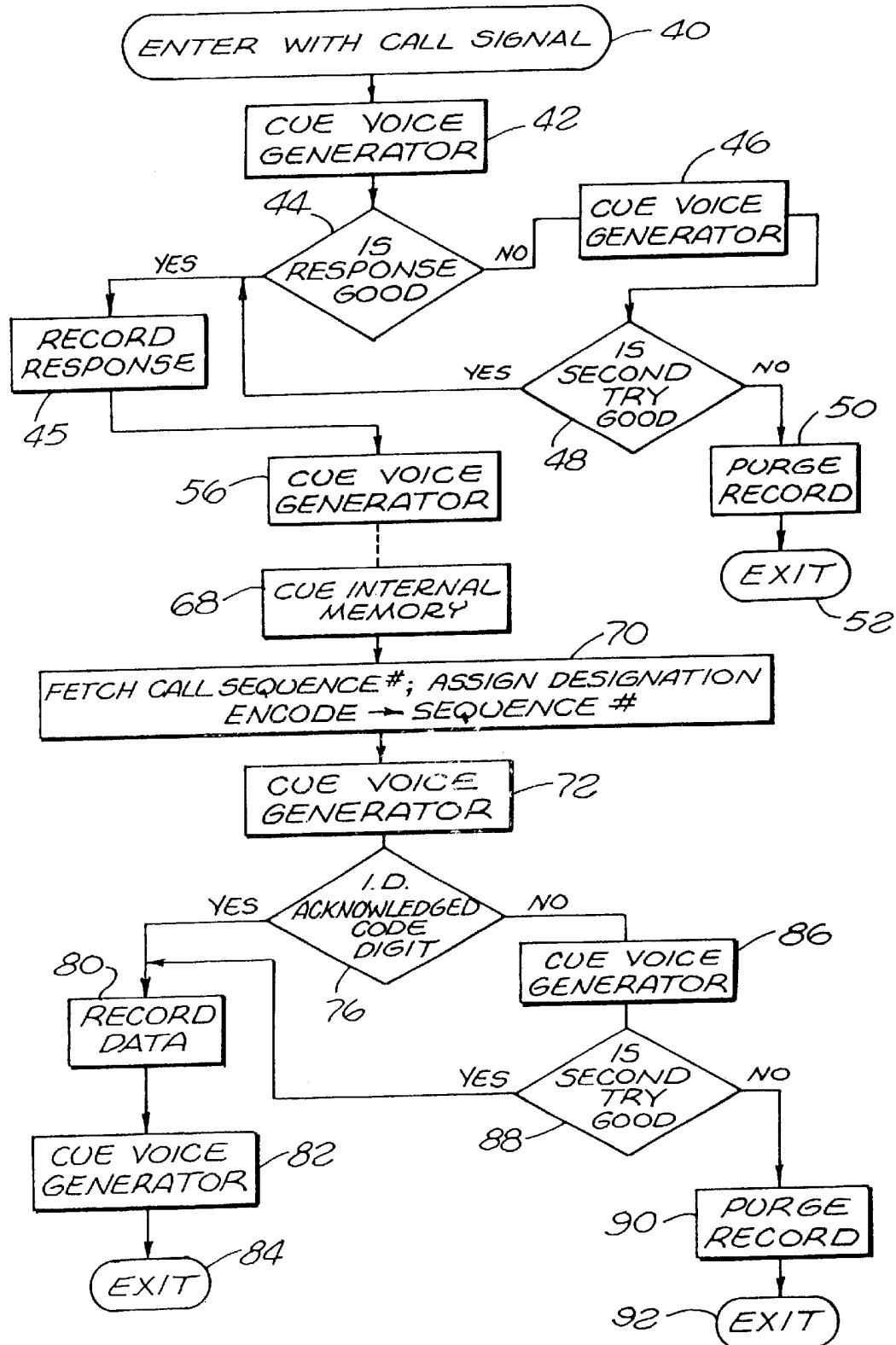


FIG. 3

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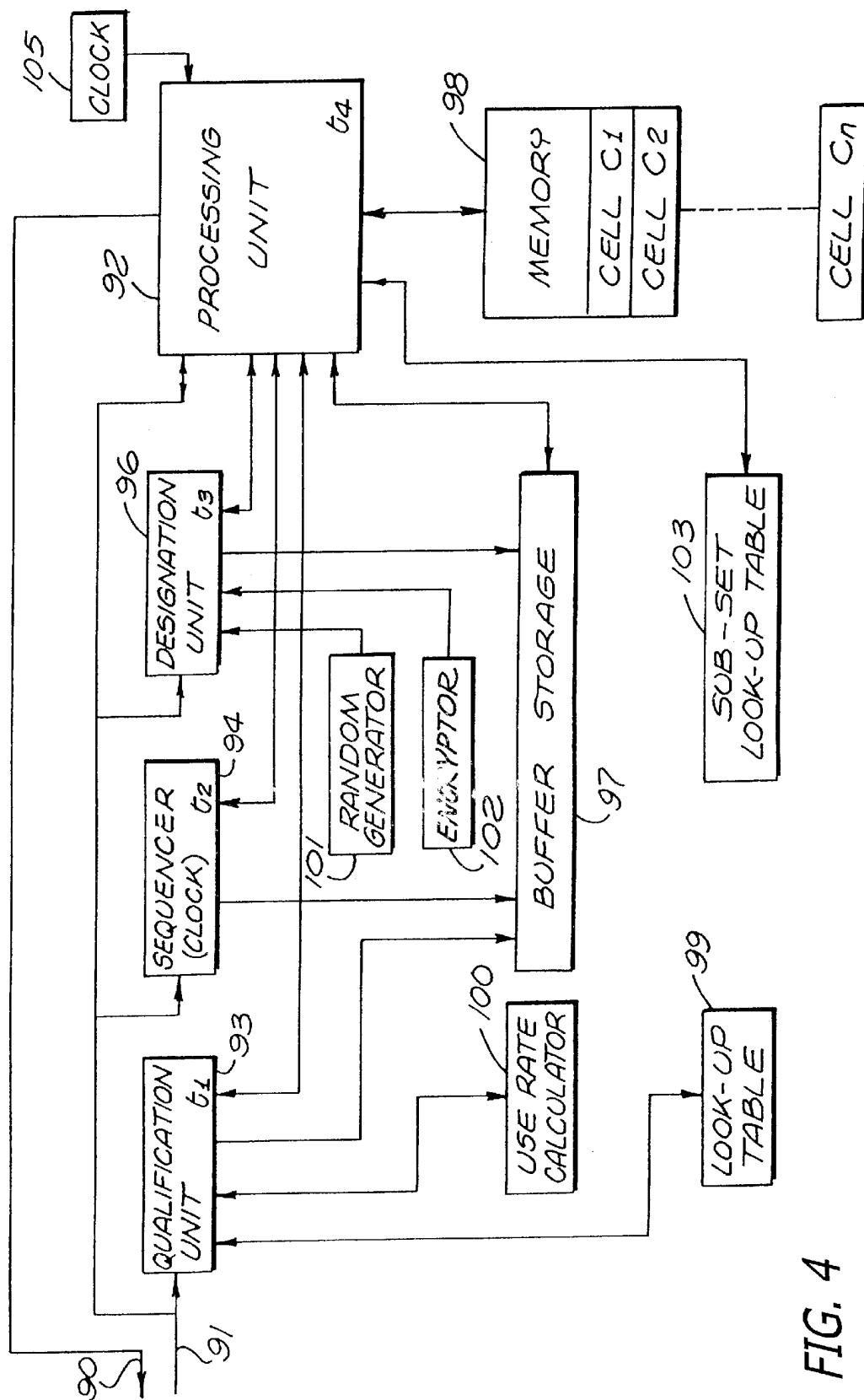


FIG. 4

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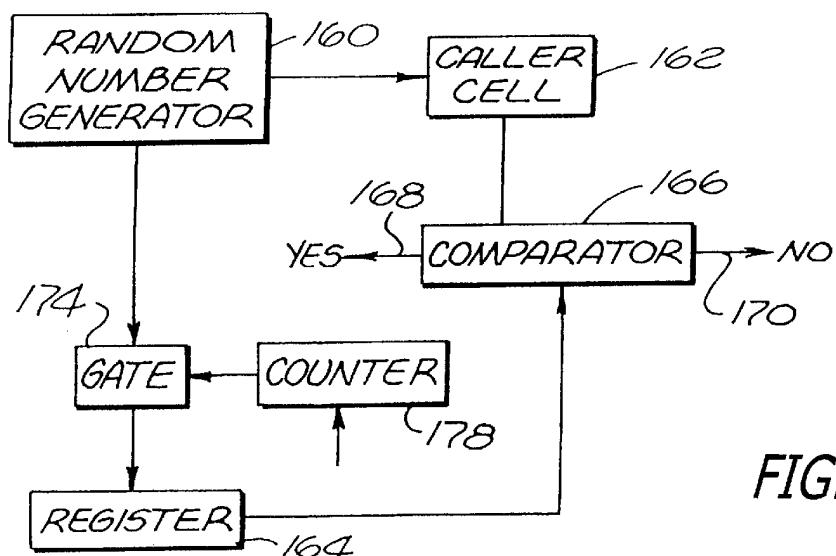


FIG. 6

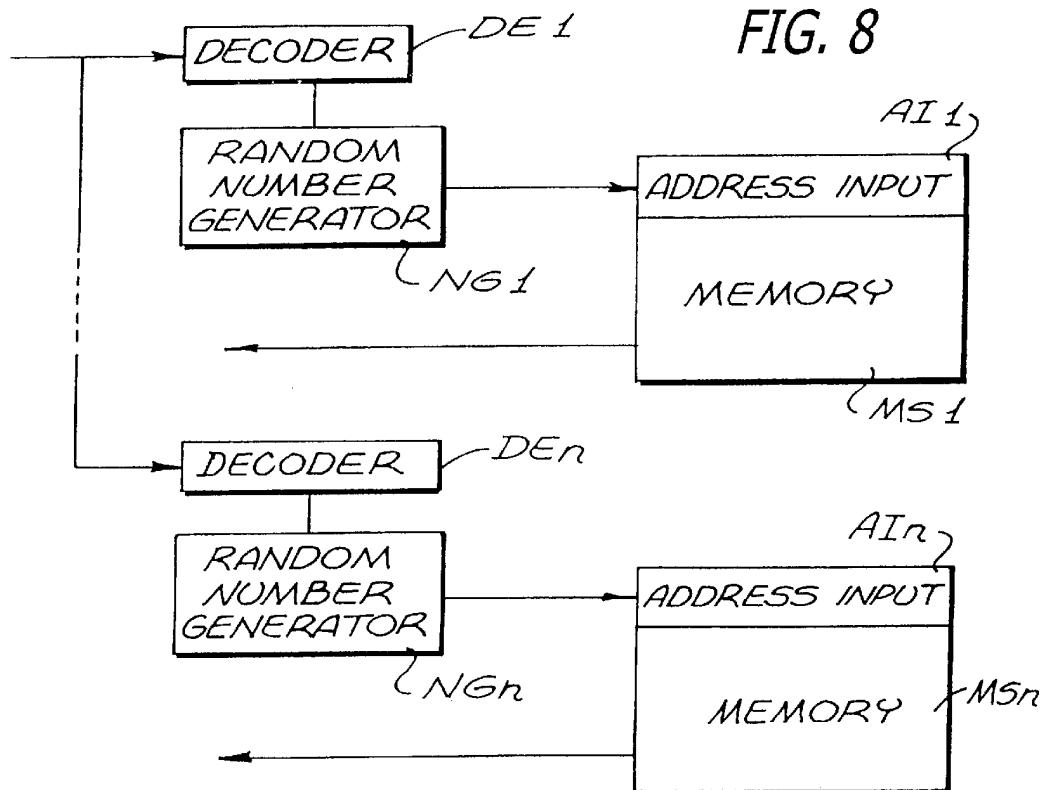


FIG. 8

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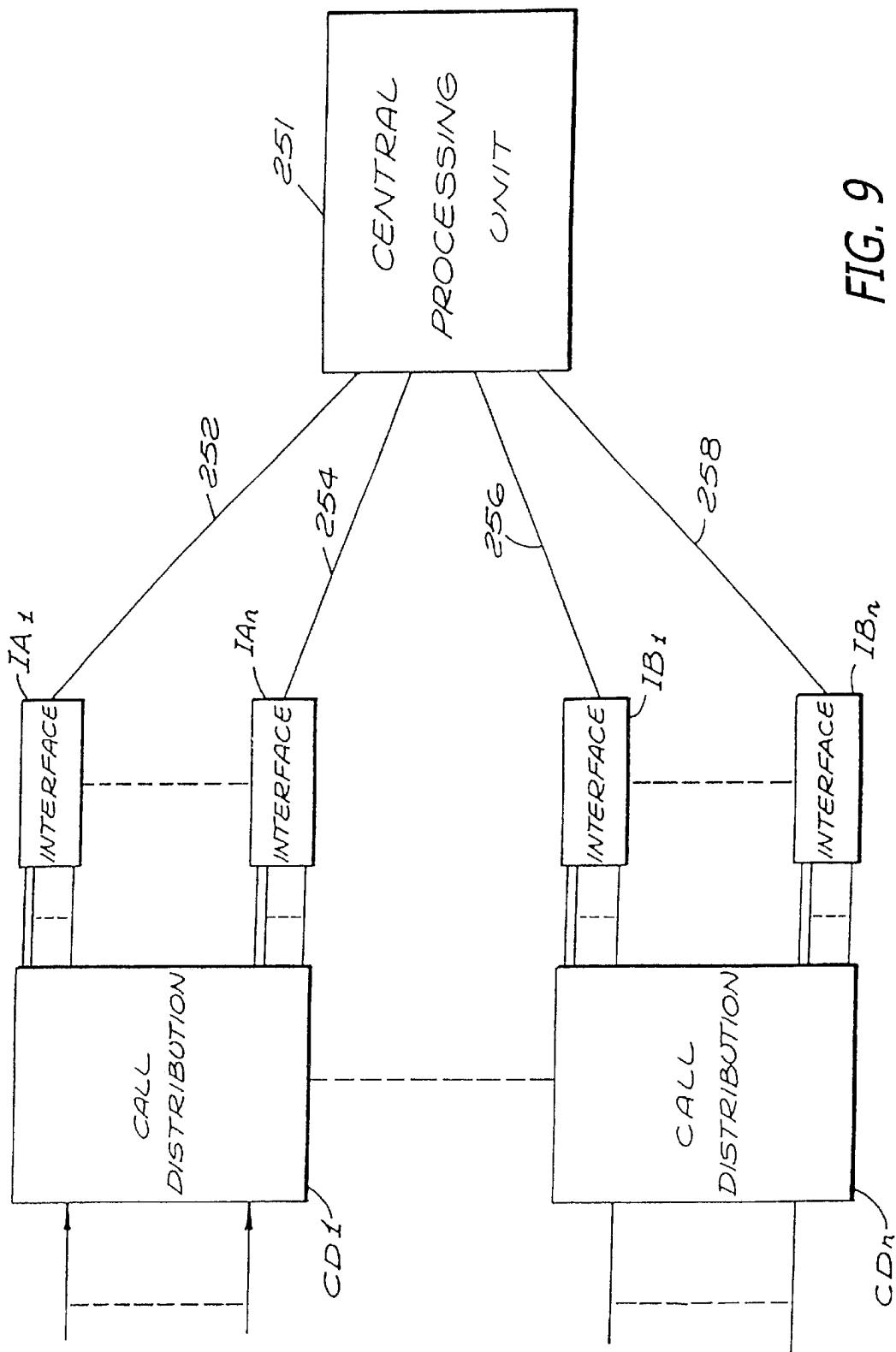


FIG. 9

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**TELEPHONE-TELEVISION INTERFACE
STATISTICAL ANALYSIS SYSTEM**

**CROSS-REFERENCE TO RELATED
APPLICATIONS**

This is a continuation-in-part of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 6,016,344, which is a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical-Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use with Public Communication Facility", now abandoned.

**BACKGROUND AND SUMMARY OF THE
INVENTION**

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications and television. Sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, for example, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical and expedient system utilizing television with telecommunication and incorporating means for performing qualification, identification and data processing analysis, possibly along with select data or the selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless such techniques have been widely used to enhance and broaden communication. To a lesser extent, television, as a communication medium, has been employed in combination with telephonic communication.

In general, the present invention comprises a television-telephonic-interface system and related process for selectively utilizing analog (audio or voice) and digital telephonic communication along with television communication in a variety of different interface formats or programs, as to variously receive and process data, for example, to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time

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independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice apparatus (via television or telephone) may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. Under some circumstances, when appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. In one format, from the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a television or telephone system.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1, with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4;

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4; and

FIG. 9 is a block diagram of the connections between the CPU and remote stations.

**DESCRIPTION OF THE PREFERRED
EMBODIMENT**

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical

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communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-television terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone-television terminals that are coupled for telephone and television communication. Specifically, at each terminal T1-Tn a telephone instrument I is coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail. The remote terminals T1-Tn also include a television receiver R adapted to receive video signals from a television source TV, for example, by broadcast (indicated by antennas 13) or by direct connection, e.g., cable reception. The television source TV is coupled to be cued, driven or controlled by the central station D as indicated by a line 15. Thus, persons at remote terminals may be cued by either the telephone link or the television link.

Generally in accordance with the present development, individual callers use the telephone-television stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the

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illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments I and television receivers R.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "*" and "#" along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PRIN and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface

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20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface **20** incorporates modems, tone decoders, switching mechanisms, DNIS and ANI (or like signals) capability (call data analyzer **20a**) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI (or like signals) capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface **20** and to provide control through the call data analyzer **20a**.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface **20** is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI (or like signals). The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface **20** provides the connection of the fifty lines to a switch **21** which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PRIN. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below. The command computer terminal CT also is connected to the television source TV through the line **15**. Note that the line **15** may be a hard wired connection or take the form of an intermittent connection, as using telephonic facilities. Essentially, the connection serves to key broadcast schedules into operating formats of the processing systems P1-Pn, each including a plurality of processors, as PR1-PRn. Thus, calls may be initiated, guided or directed by a broadcast from the source TV to the terminals T1-Tn, synchronized by the command computer terminal CT.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random

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number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct local communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PRIN to provide documents in relation to the operating format, as for providing award certificates and/or verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infirmity. The exemplary operation might involve a geographical area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals T1-Tn to contact the central station D through the communication facility C and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent the credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor PR and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal T1 (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece **10** and in accordance with conventional techniques actuates the push buttons **14** to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility C with a designated function unit in the central station D. Receiving the call signal, the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using

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standard telephone DNIS techniques) through the interface **20** and the switch **21** to attain connection with the specific processor, e.g. the processor **PR1** formatting the health-related program. Accordingly, the processor **PR1** cooperates with the interface **20** to cue the interface **20** to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block **40** which is accordingly followed by a "cue voice generator" command block **42**. If the ANI (or like signals) equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument".

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI (or like signals) equipment of the communication facility C.

The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor **PR1** for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons". The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block **48** (FIG. 3). Specifically, block **48** poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block **50** and the call is terminated as indicated by the block **52**. In an alternative mode, the processor **PR1** may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block **45**. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell **C1** is indicated in FIG. 2. The first portion, section **53**, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block **48** (FIG. 3), the response is recorded at that stage. In either case, exiting from the block **54** (FIG. 3) invokes the next operation of again cuing the voice generator as indicated by the block **56**.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor **PR1** may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of

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techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface **20** (FIG. 1) as represented by the block **56** produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name".

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks **42** through **54**. However, again, a proper response is registered in the storage cell **C1** as illustrated in FIG. 2 by the number "53" also registered in the first section **53** of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section **58** in the cell **C1** receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor **PR1** formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgement digits for the call. Such data identification is registered in the caller's assigned cell **C1** in accordance with the format of FIG. 2 being stored in sections **62**, **64** and **66**. Note that the data may be stored in a coded interrelationship. For example, the acknowledgement digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

$$\begin{array}{r}
 4951 \\
 \text{Adding without propagated carries: } 2222 \\
 \hline
 6173
 \end{array}$$

Note that the confirmation data as acknowledgement digits can be extremely important, as to communication with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section **62** while the acknowledge digits are 6173 as registered in the section **66**. Additionally, the processor **PR1** develops an assigned designation number, e.g. designation "4951684", which is registered in the section **64**, the acknowledge code or digits, e.g. 6173, being registered in the section **66**. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor **PR1** (FIG. 1) cues the internal memory. That operation is indicated by the block **68** (FIG. 3). Thus, the processor **PR1** fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgement

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digits (if not previously accomplished). These operations are indicated by the block 70 (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgement digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173". In various applications as those involving security, the order and acknowledgement of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgement digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is cued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer 22 to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with the test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling.

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Clearly, the processors P1-Pn can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T1 (FIG. 1) dials a specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly, the caller dials the number at the remote terminal T1. As a result, the communication facility C couples the terminal T1 through the automatic call distributor AC1, the interface 20 and the switch 21 to a select processor PR1 identified and programmed for a mail-order

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operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P1 through well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface 20 might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer may be asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface 20 might actuate the terminal T1 to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . .".

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card number and the expiration date of the card. The data is stored in the register 104, specifically in the blocks 132 and 134 as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block 136 of the block format register 104. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal IT (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register 104 along with his credit card number and expiration date. From that location, the data is checked by the qualification unit 93 (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated t1, the qualification unit 93 operating under control of the processing unit 92.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit 93.

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With the successful completion and verification of the preliminary data in the block format register 104, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer 94 may log the time during a period t2 if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface 20 prompts the caller through a series of exchanges that load the storage block format register 104 with a merchandise order. Thus, as purchase items are confirmed, the register 104 is loaded as exemplified by the blocks 140 and 142. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit 96 (FIG. 4) during the interval t3 to develop and announce the acknowledgement digits as stored in the block 144 (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer 97 (FIG. 4) to a select memory cell C1-Cn.

During the next interval t4, the processing unit 92 (FIG. 4) isolates data of the cells C1-Cn to facilitate the mail-order process. In that regard, the processor 92 may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1, coupling would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI (or like signals) or caller interface techniques may be employed. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to

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instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI (or like signals) equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval t2 and the operation of the sequencer 94 may be bypassed. Rather, the designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator 101 with or without the encryptor 102 may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.—Birth Year—Designation—Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the

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comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164.

Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PRIN 20 to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with the confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale. Specifically, the television receiver R of each terminal T1-Tn provides collective communication to callers.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1-Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer may be cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Alternatively, the command computer terminal CT cues the television source TV to variously inform or instruct persons at the terminals T1-Tn. Essentially, the auctioneer is given an abstract or

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summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver and may be cued with statistical data accumulated by the command computer terminal CT. In one form, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1-Tn may dial the auction number and obtain access to the processing system P1-Pn. The caller has the television receiver R, tuned for example to a cable channel. Accordingly, collective cues may be provided to callers or potential callers, as well as data on the progress or course of the auction format.

Any preliminary qualification as indicated above will be performed initially along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility C and the caller's television receiver R. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars asking callers to so bid by entering an asterisk (*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. However, the command computer terminal CT may maintain records of all bids as to cue the television source TV in accordance with a desired format. For example, the source TV may transmit a communication to the receiver R (terminals (T1-Tn) indicating status. To consider a specific, through the television link, the communication might convey: "There were five hundred bidders at the opening bid". In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by

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using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding controls the television source TV or is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly or the next round of bidding. Thus, automated or somewhat manually, the auction proceeds until a small group of remaining callers are addressed. Note that the display of the command computer terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders. Alternatively, the data collectively can be passed to callers utilizing the television link as explained above.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command computer terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 98 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage-of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93 and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 98.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of personal identification number to the child player as qualifying identification data.

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As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if the qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-Cn to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the callers exchange information to supplement their data as with respect to the play which follows. Specifically, for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above utilizing the television link for collective instructions or cues. Alternatively, a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak an instruction, for example: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the command computer terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or in real time through the television link or telephonically by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by pro-

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viding their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode), the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface 20. Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI (or like signals) equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PR1 containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e., incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves call or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of drivers' license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically,

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identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller. Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input AI1-AIn, respectively. Similarly, the address inputs AI1-AIn are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI (or like signals) equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface 20 (FIG. 1). In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input AI1 to prompt the provi-

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sion of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEn (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . . ". Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interval terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. Through the television link (source TV, cued or controlled by the command computer terminal CT, and the television receivers, as receiver R), a master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the number of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a television broadcasting facility as depicted. Of course, vari-

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ous previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems PI-Pn as explained above. Note that the processor (or the interface 20) may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI (or like signals) equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI (or like signals) equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualifications unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed indirectly from the audio unit AD through the command computer terminal CT (FIG. 1) for communication to the callers.

With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at tone press button 1; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

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At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IAn and IB1-IBn. Each of the interface units, as unit IA1, is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. An analysis control system for use with a telephonic-communication facility and a plurality of terminal apparatus for individual callers including a television receiver and a digital-audio telephone instrument whereby said individual callers are cued via the television receiver to provide data via the digital-audio telephone instrument, said analysis control system comprising:

television means for communicating television data to said television receiver and caller communication apparatus including telephonic-interface means coupled to said telephonic communication facility to interface digital-audio telephone instruments for voice and digital communication including means to provide signals representative of caller data and to receive called terminal digital data signals (DNIS) automatically provided by said telephonic-communication facility to identify a select operating format from a plurality of different operating formats;

means to control said television means and said telephonic interface means to cue said individual callers at said terminal apparatus;

analysis means for processing said signals representative of said caller data to provide resultant data and including storage of certain of said caller data or said resultant data or both; and

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qualification means for controlling access by said individual callers to said analysis means in accordance with said caller data.

2. An analysis control system according to claim 1, wherein said signals representative of caller data include signals indicative of calling terminal digital data automatically provided by said telephonic-communication facility.

3. An analysis control system according to claim 1, wherein said analysis means processes said signals representative of said caller data by comparing answer data provided by said callers with external data to isolate a select subset of said callers.

4. An analysis control system according to claim 1, wherein said caller data includes caller entered credit card number data and card expiration date data.

5. An analysis control system according to claim 1, further comprising:

credit verification structure wherein said caller data includes caller entered credit card number data and card expiration date data.

6. A controlled interface system for use with a telephonic-communication facility and a plurality of terminal apparatus for individual callers including a television receiver and a digital-audio telephone instrument whereby said individual callers are cued via the television receiver, and wherein said telephonic-communication facility automatically provides digital signals including called terminal DNIS signals, comprising:

function unit structure for supplying information of various formats, at least one of said formats actuating a television initiated mail order operation;

interface structure for interfacing said telephonic-communication facility with said function unit structure for voice and digital communication including receiving structure to receive digital signals from said individual callers and voice generator to provide signals representative of vocal communication to said individual callers; and

coupling structure for coupling a caller at a terminal through said interface structure to said function unit structure for selected communication in accordance with a specific one of said formats under control of said called terminal DNIS signals.

7. A controlled interface system according to claim 6, wherein said coupling structure includes at least one call distributor.

8. A controlled interface system according to claim 7, wherein said call distributor receives said called terminal DNIS signals.

9. A controlled interface system according to claim 6, further comprising qualification structure for qualifying calls and wherein said coupling structure is further controlled by said qualification structure.

10. A controlled interface system according to claim 9, wherein said qualification structure qualifies based upon individual digital identifying data entered by the public, prior to participation.

11. A controlled interface system according to claim 6, wherein said function unit structure comprises a multiple-port multiple-format processor structure.

12. A controlled interface system according to claim 6, further comprising memory structure for storing representations of terminal-formed signals.

13. A controlled interface system according to claim 6, wherein at least certain of said digital signals from said individual callers provide caller billing identification data.

14. A controlled interface system according to claim 6, further comprising a consumable key test to restrict access by said individual callers to a single use.

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15. A controlled interface system according to claim 6, wherein said controlled interface system receives calls for a plurality of different numbers.

16. A controlled interface system according to claim 15, wherein said plurality of different numbers are controlled by said called terminal DNIS signals.

17. A controlled interface system according to claim 16, wherein each of said plurality of called numbers is indicative of a particular geographic area.

18. A controlled interface system according to claim 6, wherein said format associated with said television initiated mail order utilizes means for actuating an audio broadcast from a source thereof, thereby interconnecting said individual callers to said audio broadcast.

19. A controlled interface system according to claim 18, further comprising:

a command computer terminal for controlling intervals for said individual callers to provide digital data during said audio broadcast.

20. A controlled interface system according to claim 19, wherein said command computer terminal controls questions propounded to said individual callers.

21. A controlled interface system according to claim 6, wherein said digital signals provided by said telephonic-communication facility include signals indicative of calling terminal digital data automatically provided by said telephonic-communication facility.

22. A controlled interface system according to claim 21, further comprising:

memory for storing calling terminal digital data.

23. An analysis control system according to claim 6, wherein said caller data includes caller entered credit card number data and card expiration date data.

24. An analysis control system according to claim 6, further comprising:

credit verification structure wherein said caller data includes caller entered credit card number data and card expiration date data.

25. A control system for use with a telephonic-communication facility including remote terminals for individual callers including a television receiver and a digital-audio telephone instrument whereby said individual callers are cued via the television receiver, and wherein said telephonic-communication facility automatically provides called terminal DNIS signals, comprising:

function unit for supplying information in various formats, at least one of said formats being associated with a television initiated order system;

interface structure for interfacing said telephonic-communication facility to said function unit for voice communication including structure to receive terminal formed digital signals and voice generator structure to provide signals representative of vocal communication to said individual callers; and

call distribution structure for coupling a specific caller at a terminal through said interface structure to said function unit structure for communication in accordance with a specific one of said formats, further wherein said call distribution structure includes a multiplicity of inputs for selectively receiving calls to be coupled to said function unit structure through said interface structure in accordance with said called terminal DNIS signals.

26. A controlled interface system for use with a telephonic-communication facility and a plurality of terminal apparatus for individual callers including a television

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receiver and a digital-audio telephone instrument whereby said individual callers are cued via the television receiver, and wherein said telephonic-communication facility automatically provides called terminal DNIS signals, comprising:

function unit structure for supplying information of various formats, at least one of said formats being associated with automation of a television initiated mail order operation and identified by said called terminal DNIS signals to select said one format from said various formats;

interface structure for interfacing said telephonic-communication facility with said function unit structure for voice and digital communication including structure to receive digital signals from said individual callers and voice generator structure to provide signals representative of vocal communication to said individual callers; and

qualification structure for qualifying said individual callers based upon incrementing or decrementing to a predetermined limit based on dollar value.

27. A process for controlling a television initiated order operation utilizing a plurality of operating formats, said process for use with a telephonic communication facility and a television broadcast facility and a plurality of terminal apparatus for individual callers including a television receiver and a digital-audio telephone instrument whereby said individual callers are cued, and wherein said telephonic communication facility automatically provides called terminal DNIS signals, comprising the steps of:

broadcasting and displaying product item number data on said plurality of terminal apparatus;

coupling said individual callers to said television broadcast facility utilizing a telephonic interface through said telephonic communication facility;

receiving caller identification data from said individual callers such as a caller's customer number;

receiving item number data from said individual callers as displayed on said plurality of terminal apparatus;

receiving caller credit card number data and card expiration number data for said individual callers; and

generating acknowledgement number data and providing said acknowledgement number data to said individual callers.

28. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

using said called terminal DNIS signals to identify a select operating format from said plurality of operating formats.

29. A process for controlling a television initiated order operation according to claim **28**, further comprising the step of:

receiving said called terminal DNIS signals via a call distributor.

30. A process for controlling a television initiated order operation according to claim **28**, wherein said step of broadcasting further comprises:

controlling questions propounded to said individual callers with a command computer terminal.

31. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

automatically providing calling terminal digital data with respect to at least certain of said plurality of terminal apparatus from said telephonic-communication facility.

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32. A process for controlling a television initiated order operation according to claim **31**, further comprising the step of:

storing said calling terminal digital data in a memory.

33. A process for controlling a television initiated order operation according to claim **31**, further comprising the step of:

requesting and receiving PIN number data from said individual callers.

34. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

testing said caller's customer number against a list of unacceptable numbers.

35. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

verifying said caller credit card number data on-line.

36. A process for controlling a television initiated order operation according to claim **27**, wherein said step of receiving said item number data from said individual callers includes receiving said item number data with respect to multiple items during a single transaction.

37. A process for controlling a television initiated order operation according to claim **27**, further comprising the steps of:

storing sequence number data with respect to transactions with said individual callers.

38. A process for controlling a television initiated order operation according to claim **27**, wherein said step of generating said acknowledgement number data includes generating calling order sequence data.

39. A process for controlling a television initiated order operation according to claim **27**, wherein said step of broadcastig includes audio communication via an audio unit.

40. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

qualifying said individual callers by imposing a limit on use.

41. A process for controlling a television initiated order operation according to claim **40**, wherein said step of qualifying further includes imposing a one time only limit on use.

42. A process for controlling a television initiated order operation according to claim **40**, wherein said step of qualifying further includes imposing a limited number of uses.

43. A process for controlling a television initiated order operation according to claim **40**, wherein said step of qualifying further includes imposing a limit on dollar value.

44. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

receiving and storing voice data from said individual callers.

45. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

switching calls from said individual callers to a live operator.

46. A process for controlling a television initiated order operation according to claim **45**, further comprising the step of:

providing a display with data on said individual callers to said live operator.

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47. A process for controlling a television initiated order operation according to claim **27**, further comprising the steps of:

receiving PIN number data from said individual callers as further identification.

48. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

receiving additional data with respect to said item number data from said individual callers.

49. A process for controlling a television initiated order operation according to claim **48**, wherein said additional data includes color or size data or both with respect to an item ordered.

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50. A process for controlling a television initiated order operation according to claim **27**, further comprising the step of:

accessing a databank with said caller's customer number.

51. A process for controlling a television initiated order operation according to claim **50**, wherein said databank includes numbers and addresses for said individual callers.

52. A process for controlling a television initiated order operation according to claim **27**, wherein said step of broadcasting further comprises:

controlling intervals for said individual callers to provide digital data during a broadcast with a command computer terminal.

* * * * *

EXHIBIT 25



US006512415B1

(12) **United States Patent**
Katz

(10) **Patent No.:** US 6,512,415 B1
(45) **Date of Patent:** *Jan. 28, 2003

(54) **TELEPHONIC-INTERFACE GAME CONTROL SYSTEM**

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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Related U.S. Application Data

(63) Continuation of application No. 09/128,936, filed on Aug. 5, 1998, now Pat. No. 6,151,387, which is a continuation of application No. 08/559,538, filed on Nov. 16, 1995, now Pat. No. 5,793,846, which is a continuation of application No. 08/073,585, filed on Jun. 7, 1993, now Pat. No. 5,553,120, which is a continuation of application No. 07/534,907, filed on Jun. 8, 1990, now Pat. No. 5,218,631, which is a continuation-in-part of application No. 07/335,923, filed on Apr. 10, 1989, now Pat. No. 6,016,344, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned, said application No. 08/559,538, is a continuation-in-part of application No. 07/335,923, which is a continuation of application No. 07/194,258, which is a continuation-in-part of application No. 07/018,244, which is a continuation-in-part of application No. 06/753,299.

(51) **Int. Cl. 7** H04M 1/64

(52) **U.S. Cl.** 329/88.22; 379/93.13

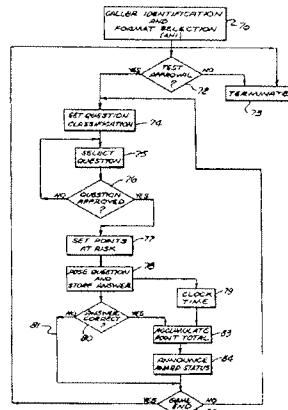
(58) **Field of Search** 379/142.01, 127.01, 379/88.19, 88.2, 88.21, 88.22, 90.01, 92.01, 92.02, 93.03, 93.12, 93.13

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ABSTRACT

A control system CS interfaces a multiplicity of individual terminals T1-Tn through a telephone network facility CO to accommodate game formats. At the terminals T1-Tn, callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and stored, as for processing. Calls are conditionally accepted based on a test of preliminary identification data (ANI or DNIS). Computer generated designations are assigned to callers and stored. Questions for game use are stored in banks, classified by order of difficulty for selection according to various formats. Specific game formats accommodate various time criteria and caller selection of degree of risk. Caller data is stored in cells along with statistical and identification data; also, key contest data is held accessible in a cache memory for reporting. Caller data may be processed individually or in interrelated formats as with reference to random or source data as to establish progressive subsets. A break-off control circuit may terminate the computer interface aborting to a manual terminal for direct communication with an operator. Real-time operation processing is an alternative to subsequently processing stored data.

32 Claims, 3 Drawing Sheets

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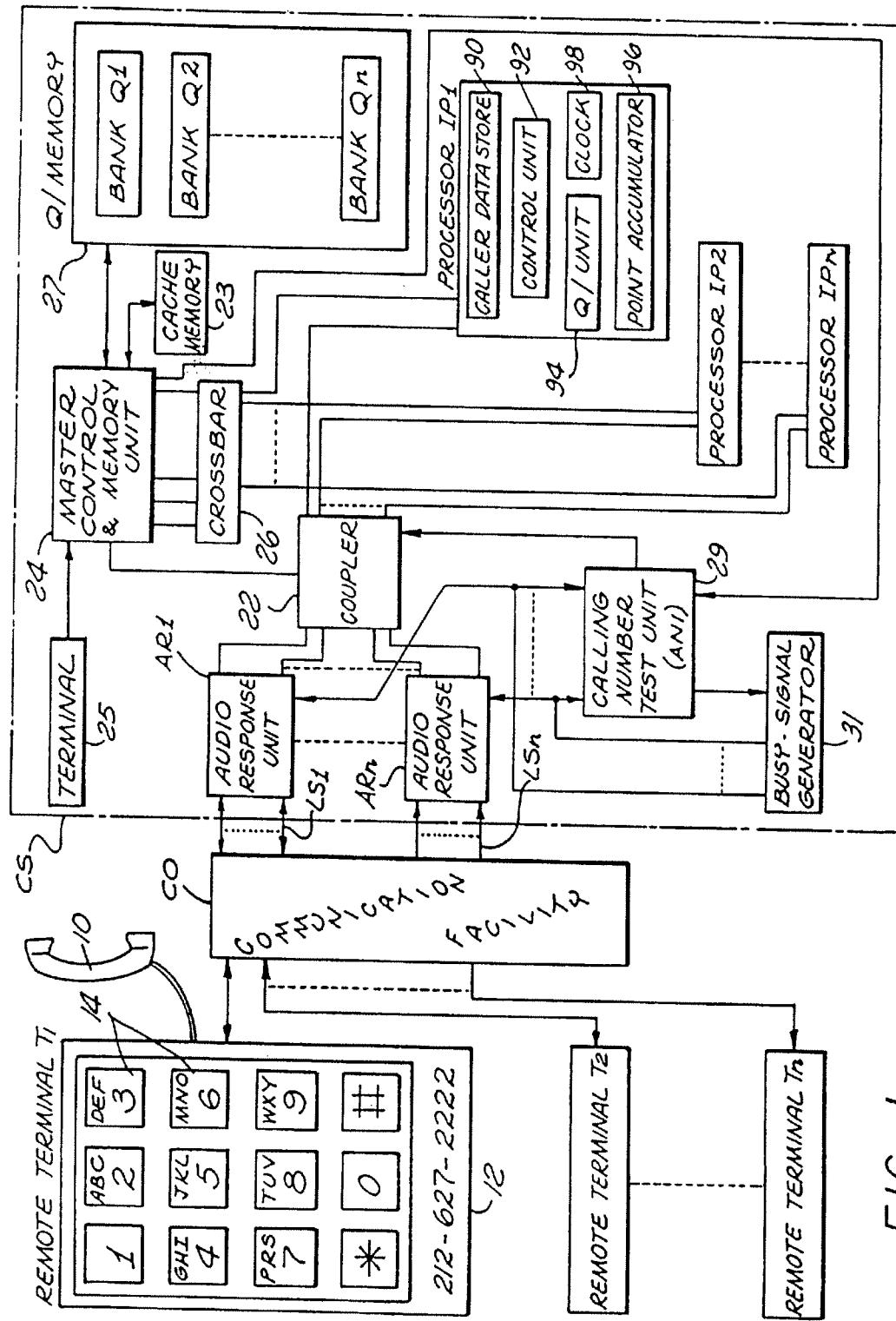


FIG. 1

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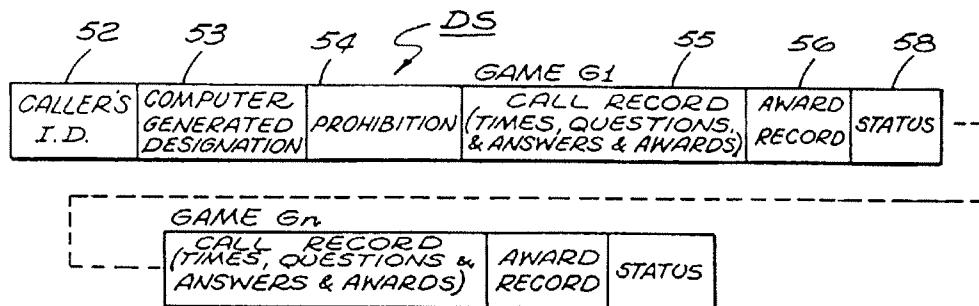
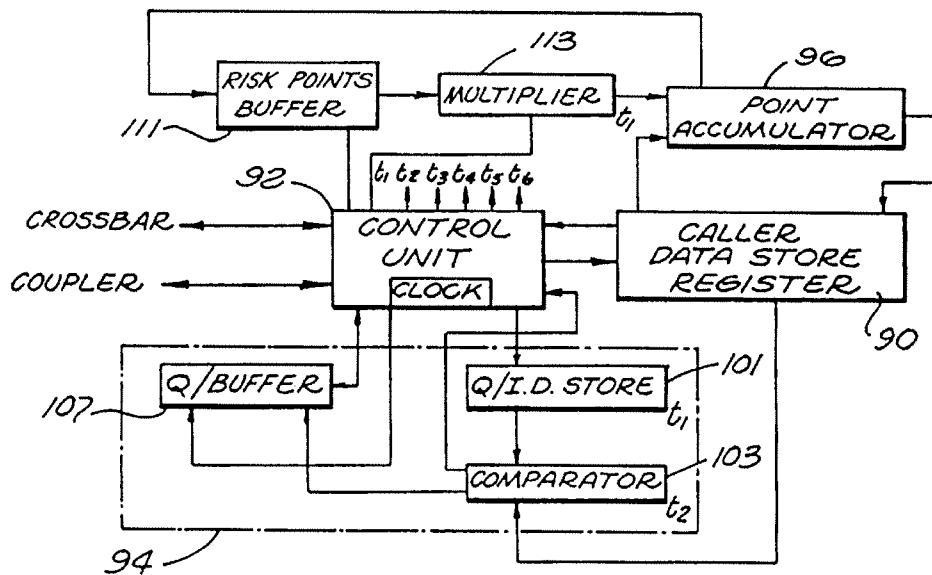


FIG. 2

FIG. 4



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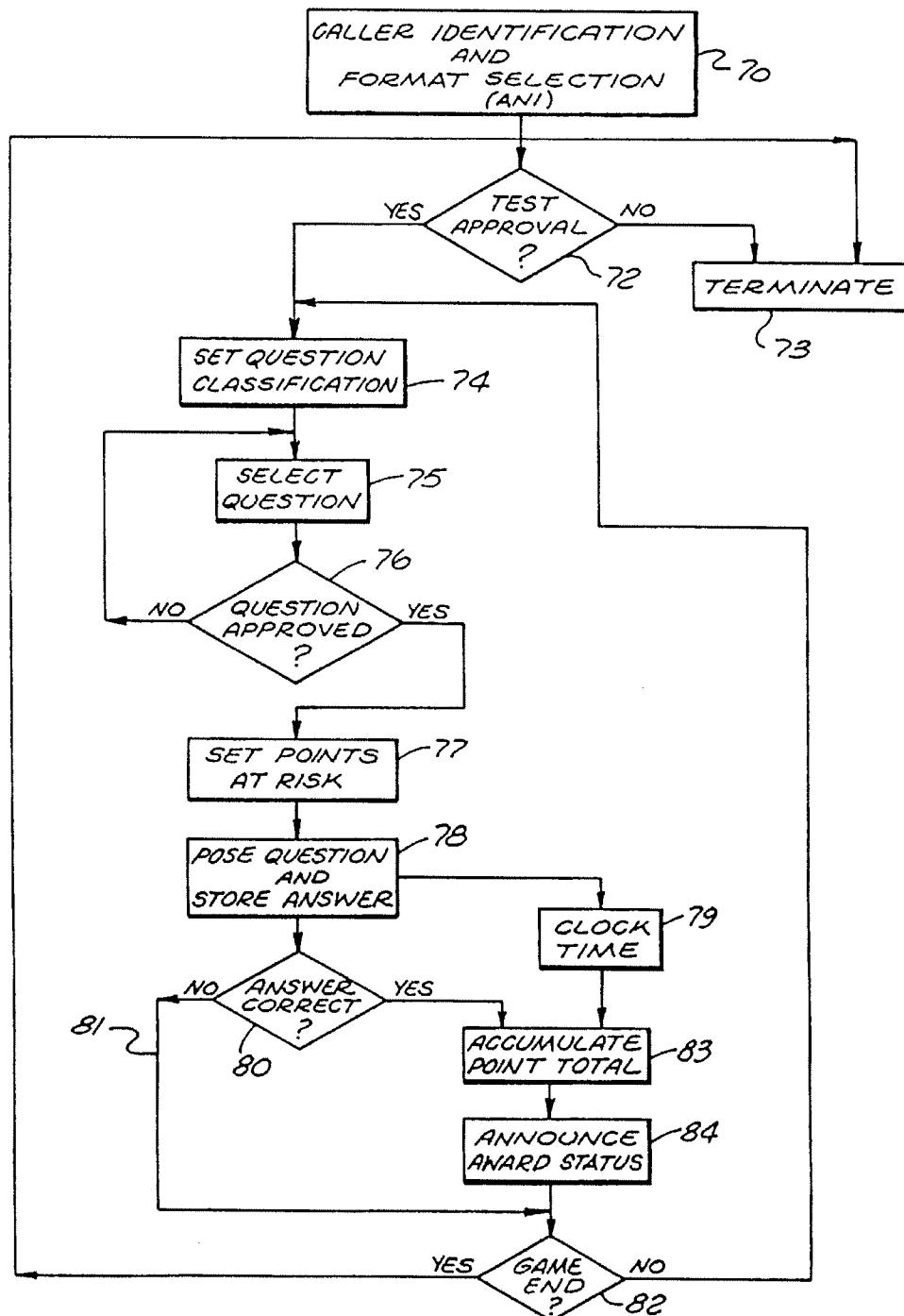


FIG. 3

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1**TELEPHONIC-INTERFACE GAME
CONTROL SYSTEM****RELATED CASES**

This is a continuation of application Ser. No. 09/128,936 filed Aug. 5, 1998, and entitled "Telephonic-Interface Game Control System," now U.S. Pat. No. 6,151,387 which is a continuation of application Ser. No. 08/559,538 filed Nov. 16, 1995, and entitled "Telephonic-Interface Game Control System," now U.S. Pat. No. 5,793,846, which was a continuation of application Ser. No. 08/073,585 filed Jun. 7, 1993, and entitled "Telephonic-Interface Game Control System," now U.S. Pat. No. 5,553,120, which was a continuation of application Ser. No. 07/534,907 filed Jun. 8, 1990, and entitled "Telephonic-Interface Game Control System," now U.S. Pat. No. 5,218,631, which was a continuation-in-part of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System" U.S. Pat. No. 6,016,344," which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which was a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned.

**BACKGROUND AND SUMMARY OF THE
INVENTION**

Also, application Ser. No. 08/559,538 is directly a continuation-in-part of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System," which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System," now U.S. Pat. No. 4,845,739, which was a continuation-in-part of application Ser. No. 07/018,244 filed on Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed on Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. § 120.

PRIOR-ART CONSIDERATIONS

To efficiently accomplish various functions, it has been proposed to interface persons at telephone calling terminals directly with a computer facility. In accordance with such arrangements, computer-generated voice messages prompt callers to provide digital data by actuating the numeric buttons that are conventionally employed for dialing from one telephone terminal to another. Such techniques have been widely used; however, a need exists for expanded operating capabilities, as to accommodate various game formats.

INVENTION SUMMARY

In general, the present invention comprises a telephonic-interface system and related processes for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different game formats or programs, as

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to accommodate a vast number of participants. For example, after approval of a caller (based on telephone number signals) calls are accepted, designations are provided and a voice generator prompts individual callers to provide digital data for a game record. An information acquisition phase may be concurrent or consecutive with respect to an information processing phase. In accordance with various game formats, acquired data is processed to accomplish the functional operations, as for a contest, a lottery, and so on.

In specific implementations or formats, the system may use various criteria as a basis for awarding credits or points to callers, e.g. interrelated processing or processing with external data, source or random. Formats may make awards for proper responses, as question answers. Also, time may be introduced as a factor in relation to awards. Questions to callers may be variously selected, as from memory banks classified with varying orders of difficulty. Also, progressive stages of play may be invoked in a format to selectively access certain awards during a single call or a series of calls to isolate subsets and sub-subsets of callers. In that regard, award points may be tallied and accessible in a cache memory for prompt accounting reports. Thus, point accounts may be reported, individually or relatively.

25. BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

30. FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1; and

FIG. 4 is a block diagram of a processor or function unit as may be employed in the system of FIG. 1.

**25. DESCRIPTION OF THE ILLUSTRATIVE
EMBODIMENT**

As required, a detailed illustrative embodiment of the present invention is disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is shown in any detail. The exemplary telephone terminal T1 is represented to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest vocal prompts or cues to the caller.

65. In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry

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three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14, designated with symbols and "*" and "#", along with the numeral "0" can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components.

The remote terminals T1 through Tn represent a multitude of conventional telephone terminals coupled to a communication facility CO that may take the form of a comprehensive public telephone system. In accordance with the present system, the terminals T1-Tn operate through the telephone communication facility CO to be coupled with a central station CS.

Generally in accordance with the present development, individual callers use the individual telephone terminals T1 through Tn to interface the station CS (in a game format) through the communication facility CO. Depending on individual formats, the data of individual callers may be collected, correlated and tested by the station CS according to programs and external data. As a result, a select subset of the callers may be isolated and identified.

At any instant of time, the collective interface involving the communication system CO and the processing station CS may involve calls from several thousand of the terminals T1-Tn. Accordingly, the station CS may take the form of a sizable computer or mainframe. Although numerous possible configurations are available, for purposes of convenient illustration and explanation, the central station CS of the disclosed embodiment includes a plurality of audio response units AR1-ARn (left) and cooperating individual processors IP1-IPn (lower right) coupled to receive call data, as through a call distributor (not shown).

At this stage, some specific aspects of the communication interface are noteworthy. Generally, by telephonic dialing, the communication facility CO couples select terminals T1-Tn to select of the audio response units AR1-ARn. For example, as a result of dialing a specific telephone number at the remote terminal unit T1, the communication facility CO might couple the terminal unit through one of several sets of lines LS1-LSn to the audio response unit AR1. The caller at the terminal T1 accordingly is ultimately interfaced in a game format with the processor IP1.

From the audio response units AR1-ARn, lines LS1-LSn pass through a switch coupler 22 for select communication with the individual interface format processors IP1-IPn. As indicated above, while the interface processors IP1-IPn are illustrated as separate and distinct units, it is to be understood that various structural processing combinations based on time sharing, parallel processing, compiler techniques, bus technologies and other well known computer techniques may be employed variously to accomplish the objective processing as explained in detail below. As the processors IP1-IPn are similar, only the processor IP1 is shown in any detail in FIG. 1. Note also that various of the structures and functions of the processors IP1-IPn may be incorporated in the units AR1-ARn. Of course, specific arrangements and configurations will likely be implemented based on currently available hardware and software.

The coupler 22 also is connected to a master control and memory unit 24 which incorporates substantial memory and programmable computing capability. The unit 24 is associa-

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tively coupled to: a cache memory 23 (right), a manual terminal 25 (upper left), a question memory bank 27 (upper right), a calling number test unit 29 (lower left) and through a crossbar 26 (below) to the processors IP1-IPn. Note that both the function and structure of cache memories for storing current data and crossbars for selectively interconnecting multiple parallel structures are well known in the computer arts. For a detailed description of cache memories and crossbars, see the book, "High-Performance Computer Architecture" by Harold S. Stone, published by Addison-Wesley Publishing Company, 1987.

The calling-number test unit 29 (lower left) essentially is a comparator or coincidence device. For example, the unit 29 may take the form of a look-up table for storing negative telephone numbers that are unacceptable. The number received in conjunction with a call, as by automatic number identification (ANI) equipment is supplied through a receiving unit AR1-ARn before the call is "answered". If addressing the look-up table (negative list) in the test unit 29 with the calling number indicates registration of the number, a busy signal generator 31 is actuated and the involved unit AR1-ARn supplies a busy signal to the caller, declining the call.

Accordingly, as described in detail below, disqualified calling numbers are rejected before being "answered".

As indicated above, the coupler 22 functions as a switch as well known in the prior art to establish line couplings from one of the audio response units (AR1-ARn) to one of the interface processors IP1-IPn. The operation of the coupler 22 is implemented in association with the unit 24 which may be programmed to execute specific control and memory functions as detailed below. Again the division of functions between the unit 24, the units AR1-ARn and the processors IP1-IPn may vary considerably depending on available structures and techniques. Accordingly, the disclosed system is deemed to be merely exemplary.

Generally, the interface processors IP1-IPn receive basic record data from the unit 24 and current data from the terminals T1-Tn. In a multiple format configuration, operating program data either may be initially developed in the processors IP1-IPn or supplied from the unit 24. In any exemplary format, a packet of data is assembled in one of the processors IP1-IPn during an interface with one of the terminal units T1-Tn. After being organized in a cell, the data packet may be stored in the unit 24 for subsequent use. Accordingly, an inventory of game participants is developed with their data cells available for repeated use. Concurrently, significant data, as for example data relating to the highest current game scores, may be abstracted in the cache memory 23 for prompt reporting.

Of the wide variety of operating formats and game applications accommodated by the present system, it will be apparent that certain elements have reoccurring significance in various combinations. Specifically, such elements include: (1) utilizing the called telephone number to select a specific operating format, (2) screening or selecting callers who will be accepted based on various criteria including received telephone numbers (ANI, DNIS) for screening before call acceptance (going off hook), (3) designating callers, as with manually or automatically provided telephone number data or computer-generated designations to enable subsequent positive identification, (4) providing a selection of cues (questions) for callers as from data banks of various difficulty levels, (5) enabling callers to specify degrees of risk (points), (6) relating response data (answers) to time as a further criterion, (7) using external data (random

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or source) for processing caller data to isolate a subset (or series of subsets) as by interrelated or independent processing, and (8) accumulating caller scores over a substantial period with key data abstracted for easy access (cache).

With respect to the data processing aspects, exemplary elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the utilization of time or sequence as a criterion to determine a subset.

In the development of data cells, current data is provided from the master control and memory unit 24 and the question memory 27 for interfacing a caller. Specifically, as indicated above, the unit 24 incorporates a memory for storing individual caller cells addressed by caller identification. Accordingly, records are created and maintained on individual callers indicative of identification, qualification and the results of participation in a game of games.

For use in association with various games, the question memory 27 incorporates a plurality of question banks Q1-Qn, each storing questions of different classification as with respect to difficulty. For example, the question bank Q1 may store relatively easy questions, with the level of difficulty progressively increasing through the question banks to the bank Qn. Accordingly, the master control and memory unit 24 may be actuated in accordance with a format to select questions of a predetermined character by designating a specific one of the banks Q1-Qn. Consider some specific operations as may be implemented with respect to the question memory 27. A telephone number alone may designate a specific question bank Q1-Qn, for example, the number being either "called" or "calling" and provided automatically (ANI, DNIS) or manually.

In a more elaborate example, telephone numbers provided automatically may be compared with telephone numbers provided manually to access a select question bank Q1-Qn only in the event of coincidence. Also, telephone numbers may be used in logic combinations with other data to select a question bank Q1-Qn. To consider some examples, a simple application might eliminate a bank of questions used previously in an interface with a calling number. Alternatively, banks may be eliminated if used previously for either or both of an automatically provided number and a manually provided number. Of course, inconsistent numbers might also prompt further programmed inquiries.

The selection of a question bank also may be based on other data, as data generated during an interface. For example, questions of progressive orders of difficulty may be propounded as a sequence interrupted by a incorrect answer.

Returning to the structure of the master control and memory unit 24 and its related operations, data cells DS are stored for each caller and may involve a format as illustrated in FIG. 2. Specifically, a block 52 is indicated to represent a field for a caller's established identification. A block 53 carries a computer-generated designation for the caller. A block 54 indicates a prohibition field designating a caller either as being totally prohibited or prohibited with respect to certain game formats. As indicated above, a negative list of prohibited callers may alternatively or also be stored as a look-up table.

The balance of the data cell DS is dedicated to game format sections G1-Gn. In FIG. 2, three exemplary game sections are illustrated. Specifically, in a game section G1, designated field 55 carries a call record (times, questions,

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answers and awards), a field 56 indicates a caller's current award record, and a field 58 indicates a caller's status. Generally, variations or duplicates of the fields 55, 56 and 58 are provided in game sections G2-Gn for alternative game formats. Games may vary widely with caller data processed accordingly. For example, caller data may be processed individually or in interrelated patterns, as with reference to external data (random or source) to establish winners as subsets or progressive subsets.

To consider a specific example, a format now will be described wherein television viewers participate in a game show for prizes. Along with expanding participation of television viewers in a program, the format also has the potential of expanding general program interest.

Game shows for the exemplary format may take any of a wide variety of different forms in which studio contestants compete for prizes. However, in utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers. Specifically, prior to participating in a game, interested participants might interface the system as depicted in FIG. 1. In the course of an exchange, a data cell is initiated for each caller in the unit 24. The initial fields 52, 53 and possibly 54 are accordingly loaded.

With preregistration, at the time of participation, callers are qualified, initially by avoiding a negative list then by presence on a positive list, as by reference to an assigned memory cell. Thereafter, the interface data is received to supplement prior data. For example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation essentially may involve a voice generator in the associated audio response unit, e.g. unit ARI (FIG. 1) receiving cue signals from the processor IP1 to activate the remote telephone unit T1 to speak an instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2... and so on". The caller also may be instructed to indicate the extent of a wager (points at risk). For example, "Push the number button indicating the points you wish to risk".

The received participant data or computed result data is stored in the active processor IP1 for return to an assigned cell in the unit 24. Scores are compared or otherwise interrelated between individual processors IP1-IPn to provide an abstract of key data in the cache memory 23. For example, the highest scores may be stored so that caller reports may cover a participant's score as well as indicating the significance of that score to others. A report message might state: "Your score is now 537. The highest score is 641 and the average score is 316. Good luck." Thus, individual accounts can be given for each of the calling participants dependent upon their success in association with a studio player. Thus, after an interval of play, the processing units, as the unit 92 (FIG. 4), may isolate a subset of scores in the cache memory 23. Of course, various arrangements may be provided ultimately for rewarding a select subset of winners or persons qualified for play at a higher level.

As explained, the above format generally involves a real-time game show with an on-line operating format. A somewhat similar format may involve non-real-time operation and in that sense, callers may interface the system of the present invention before and after the show; however, not primarily during the show. As examples, such a game format might involve: a quiz for callers based on their ability to perceive and remember occurrences within the show, a word game (Scrabble) or any of a multitude of games involving knowledge, time, random events and so on.

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As indicated above, a multitude of game formats may be executed based on an elemental operating process hereof as will now be considered with reference to FIG. 3. An initial operation involves caller identification and format selection. As indicated above, caller identification may have been previously established or may be established preliminarily in the course of a call to participate in a game. Caller identification may involve telephone terminal data as provided by ANI telephone equipment. Also, the designation of a specific format at the central station CS may be commanded on the basis of the called telephone number (may be provided by DNIS telephonic equipment). Thus, in certain instances, the caller identification and the format selection may occur with no conscious involvement by the caller. These operations are represented by the block 70 in FIG. 3.

With the identification of a caller, as represented in FIG. 3, the next step involves approving the caller for participation as represented by the query block 72. For example, callers might be tested in relation to negative or positive lists, personal identification numbers may be checked, a use-rate calculator may be involved or a caller may be tested or qualified with respect to various payment schemes. Accordingly, individual callers are ultimately either approved or disapproved.

As indicated above, calls that are determined to be unqualified based on ANI signals may be rejected without completing a communication circuit, i.e. "answering". Otherwise, callers disapproved from the test block 72 receive a termination message as represented by the block 73. The termination procedure may be variously formed, as with a spoken message or signals prompting the caller to hang up.

Approved callers encounter the next step in the process as represented by the block 74 involving the selection of a desired class of questions. Of course, specific formats may vary widely; however, as a simple example, with correct answers, a caller might be given questions in an increasing order of difficulty. Alternatively, orders of difficulty may be related to individual calls for participation in the game. As still another possibility, orders of difficulty may be related to a scale of risk, reward or be the choice of the caller. In any event, determining an order of difficulty prompts the master control and memory unit 24 (FIG. 1) to draw a stored question from a select one of the memory banks Q1-Qn. Thus, a question is selected in a process step as indicated by a block 75 (FIG. 3).

Selected questions are tested as indicated by a query block 76. For example, selected questions may be compared with previous questions propounded to a caller (stored in the field 55) so as to avoid duplications. If a question is determined to be duplicative, or otherwise inappropriate, the process returns to the step of block 75 for the selection of another question.

With the selection of an approved question, the process proceeds to the next step of determining the risk to be undertaken by the caller (block 77). For example, a caller may be instructed to indicate the extent of a wager. Specifically, the Q might be: "Please push the number button indicating the points you wish to risk". As represented in FIG. 3 by the block 77, the step establishes a degree of risk for the caller.

With the degree of risk determined and the question selected, the question is vocalized to the caller as indicated by block 78. Typically, the question may be answered by depressing a button or buttons 14 (FIG. 1) at the remote terminal T1. For example, "What are the initials of the fourth President of the United States?"

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With the posing of a question, a time clock is checked as indicated by the block 79 for determining the interval between question and correct answer. A query block 80 represents the determination of whether or not a correct answer is received. If a correct answer is not received, the operation advances to a query block 82: "Game End?" as discussed below.

A correct answer advances the process from the step of the block 80 to a step represented by a block 83, i.e. of accumulating the award points. The step of the block 83 involves the determination of a correct answer (block 80) and the time required for the correct answer (block 79). A combination of time and the correct answer resolves the award points that are accumulated with any prior or existing point total as represented by the block 83. The resulting total is announced to the caller in a step illustrated by block 84. As explained above, the announcement may refer to comparative significant scores. As a part of a winning step in the process, the caller may be placed in direct vocal communication with an operator. Specifically, the unit 24 (FIG. 1) couples the call to the terminal 25 and supplies related prompting data for display.

The step of announcing a total point count to a caller advances the process to the query represented by block 82, i.e. determine whether or not the game phase has ended. If the game phase has ended, the process proceeds to the termination step as indicated by the block 73 (upper right). If the game phase has not ended, the process returns to the block 74, involving the preliminary step of selecting a question. Of course, the game may involve one or several questions during the course of each telephone call. At the end of a game phase, the data is returned to the unit 24 as for processing or future retrieval during another game phase.

The process as illustrated in FIG. 3 is executed in the system of FIG. 1 by an association between one of the processors IP1-IPn and the master control and memory unit 24 along with the question memory 27. Considering the processor IP1 generally, with the qualification of a call, a data cell for the caller is established in a data store 90 in the processor IP1. Somewhat similarly, the game format for the call is set in a control unit 92 within the processor IP1.

Also, with the operation of setting up the processor IP1, the master control and memory unit 24 functions with the question memory 27 and a specific one of the question banks Q1-Qn to isolate an operative question that is stored in a question unit 94 of the processor IP1. The select question is propounded to the caller through the coupler 22 and an audio response unit, e.g. unit AR1. Cued by the question (audio), the caller is expected to key in an answer to provide digital response data. Upon the occurrence of a correct answer, a point accumulator 96 (processor IP1) in combination with a clock 98 (processor IP1) determines a point award that is accumulated in the caller data store 90. Thus, the process proceeds until the call is terminated with the possibility of the caller acquiring points according to the predetermined operating format.

The components of the processor IP1 are shown in FIG. 4 arranged and inter coupled for operation. Note that similar identification numerals appear in FIGS. 1 and 4.

To treat an illustrative operation comprehensively with reference to FIGS. 1 and 4, again assume an exemplary format that is associated with a television broadcast. Specifically, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select

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operating format. For example, the caller may actuate the buttons 14 for the station number "1-900-555-7777" to identify the game format of current description.

With the responsive operation of the communication facility CO, the caller is coupled to an audio response unit, e.g. unit ARI. A further connection is made from the audio response unit ARI through the coupler 22 to the unit 24.

Operating through the communication facility CO, one of the audio response units ARI-ARn, the coupler 22 and the master unit 24, the initial contact may be variously implemented. For example, a call signal as provided to a select audio response unit ARI may include representations of the caller's number and, accordingly, access a data cell on the caller. A general negative file may be carried in the master unit 24.

Recognizing the various possibilities, assume that at the outset of the interface, a voice generator in the audio response unit AR1 is actuated by the unit 24 to greet the caller. For example, the caller might be greeted: "Thank you for calling XYZ Company to participate in the XYZ Game".

As explained above, the caller may be variously qualified, for example, in a format to determine if the caller is registered, has a proper identification or has a key number. In any event, at some stage of operation, the master unit 24 provides the data cell for the caller to the processor IP1 which is stored in the caller register 90 (FIG. 4). As suggested above, if no data exists on the caller, the operating format may variously qualify or condition the caller with the result that data is established for the caller as indicated in FIG. 2.

In executing the specific process of a format, the control unit 92 (FIG. 4) provides timing signals t1-t6 to sequence specific components. Generally, the individual operations attendant each of the timing intervals (manifest by the high level of a binary signal) are as follows:

Interval or Signal	Function
t1	store tentative question
t2	check tentative question
t3	register question and determine risk points
t4	operative question exchange interval (cue and response)
t5	award points
t6	accumulate points-and store

To consider the overall operation as related to structure, the master unit 24 (FIG. 1) operates with one of the audio response units AR1-ARn initially to establish criterion for selecting a question. The criterion may involve the status of the caller, the sequence of the format, the nature of the game, or any of various other considerations. However, it is important to appreciate that the question memory 27 (FIG. 1) incorporates a multitude of banks Q1-Qn each of which contains questions serving different criteria, e.g. different levels of difficulty. Essentially, each question within each of the banks Q1-Qn is addressed by a specific designation which also indicates a class of question.

Upon the selection of a class of question, a specific tentative question is identified and an identification code is placed in a question identification storage 101 (FIG. 4) contained within the question unit 94. Accordingly, the identified question is tested against previous questions posed to the caller. Specifically, the record of the caller's data cell (FIG. 2) includes identification of prior questions posed. The identifications of those questions are sequentially supplied

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from the register 90 (FIG. 4) to a comparator 103 that is also coupled to the store 101. If a coincidence occurs, a signal is provided from the comparator 103 to the control unit 92 commanding the master unit 24 (FIG. 1) to select another tentative question. The test operation is then repeated as indicated by the block 76 in FIG. 3.

If no coincidence is detected between the prior and the tentative question, the comparator 103 (FIG. 4) provides a signal to a buffer 107 for accepting the question. Specifically, upon approval of a question, the master unit 24 (FIG. 1) addresses the select memory bank (Q1-Qn) to supply the selected question through the crossbar 26 and the control unit 92 (FIG. 4) to be registered in the buffer 107.

Concurrently with the operation of selecting a question for a specific interface, the system determines the degree of risk involved with the question. Specifically, as explained above, the caller may interface the master unit 24 through one of the audio response units AR1-ARn to establish points at risk, the value of which is represented by signals supplied through the crossbar 26 (FIG. 1) to the control unit 92 (FIG. 4) and set in a risk points buffer 111. Accordingly, with the degree of risk established (buffer 111) and the question established (buffer 107) the system proceeds to cue the caller with the select question.

The caller's answer is reduced to a digital format as a result of actuating the keys 14 at the remote terminal. Accordingly, digital signals are provided through the communication facility CO and the audio response unit ARI to the coupler 22 interfacing the processor IP1. Within the processor IP1, the control unit 92 tests the answer while metering the time required for the answer. Typically, the timing will be in terms of seconds. The control unit determines whether or not the answer is correct and if so, the amount of time required for the answer. As a result, factors may be determined as by the use of a simple look-up table. For example, if a correct answer is provided within two seconds, a factor of "3.0" may be formulated. A correct answer within five seconds might produce a factor of "2.5" while a correct answer within seven seconds produces a multiplier factor of "2.0".

Signals representative of the multiplier factor are provided from the control unit 92 to a multiplier 113 that is also coupled to receive signals representative of the risk points from the buffer 111. Accordingly, the value of the risk points is multiplied by the determined factor to produce a product supplied to the point accumulator 96 to be added to the residual value. Accordingly, a fresh accumulation is determined. Of course, if the correct answer is not provided, the multiplier 113 is dormant with the consequence that the caller is left with the residue of points in the accumulator 96 remaining after withdrawing the points-at-risk.

After each cycle of processing a question, the accumulated points may be announced to the caller simply by actuating the audio response unit ARI. As indicated above with respect to FIG. 3, when the game is concluded, the call is terminated in accordance with a predetermined subformat.

In relation to the disclosed embodiment, it may be seen that the system affords certain distinct features important with respect to interface operation. Specifically, the provision of a plurality of data banks within a question memory accommodates various formats for question selection, e.g. order of difficulty, format state, geographic location and so on. Also, the feature allowing a caller to determine the points at risk affords considerable flexibility of operation with attendant caller participation. The feature incorporating time

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as a criterion for awards also affords considerable flexibility in formulating effective game formats.

Furthermore, depending on the detailed operation of the system, individual data packets for cells of callers afford an effective technique for accumulating data over a progressive game period. In a related context, qualification of callers is significant in general and particularly noteworthy in relation to declining select calls before "answering".

In view of the above description, it will be apparent that the system of the present invention may be effectively used in telephonic interfaces to accommodate flexibility and control by a caller in accordance with a predetermined format. Although the disclosed embodiment is directed to a game operation, it will be apparent that the system may be variously embodied to accommodate a wide variety of telephonic interface operations. Furthermore, it will be apparent that while the disclosed embodiment comprises specific elements and configurations, any of a variety of structures might well be utilized. Accordingly, the scope hereof is deemed to be as set forth in the claims below.

What is claimed is:

1. A process for determining the acceptability of calls and executing formats in association with a communication facility including remote terminal apparatus for individual callers, wherein said remote terminal apparatus includes a telephonic instrument with voice communication means and digital input means in the form of an array of alphabetic, numeric buttons for providing data, said process including the steps of:

receiving associated telephone number signals upon the instance of a call from one of said remote terminal apparatus;

testing said associated telephone number signals with respect to stored negative data to determine the acceptability of said call from said one of said remote terminal apparatus as indicated by an acceptability signal;

accepting said call from said one of said remote terminal apparatus conditioned on said acceptability signal;

interfacing via said communication facility to accepted calls to provide voice signals for cueing callers and receiving responsive digital data in accordance with a select format; and

testing at least certain of the responsive digital data against stored positive data to determine if further voice signals for cueing callers should be provided.

2. A process according to claim 1 wherein said step of receiving associated telephone number signals includes receiving data represented by number identification signals provided automatically by said communication facility to indicate called or calling numbers.

3. A process according to claim 1 wherein said step of testing is accomplished prior to accepting said call whereby audio communication is not established for calls that are not accepted.

4. A process according to claim 1, further comprising the step of:

transferring calls for which no acceptability signal is received to a manual terminal for direct communication.

5. A process according to claim 1, wherein the select format is selected from plurality of formats based on dialed number identification signals automatically received from the communication facility.

6. A process according to claim 1, wherein the stored negative data includes a list of unacceptable numbers.

7. A process according to claim 6, wherein the responsive digital data include identification data entered by the callers

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and the callers are further qualified based on the caller identification data.

8. A process according to claim 7, wherein the identification data includes social security number data for the callers.

9. A process according to claim 4, wherein an operator enters data at the manual terminal.

10. A process according to claim 4, further comprising the step of:

10 storing at least a portion of the data entered by the operator.

11. A system for determining the acceptability of calls and executing certain operations of telephonic formats in association with a communication facility including remote terminal apparatus for individual callers, wherein said remote terminal apparatus includes a telephonic instrument with voice communication means and digital input means in the form of an array of alphabetic, numeric buttons for providing data, said system comprising:

mean for receiving associated telephone number signals upon the instance of a call from one of said remote terminal apparatus;

means for testing said associated telephone number signals with respect to stored negative data to determine the acceptability of said call from said one of said remote terminal apparatus as indicated by an acceptability signal;

means for accepting said call from said one of said remote terminal apparatus conditioned on said acceptability signal;

means for interfacing said communication facility to provide voice signals for cueing callers and receiving responsive digital data in accordance with a select format to accepted calls; and

testing at least certain of the responsive digital data against stored positive data to determine if further voice signals for cueing callers should be provided.

12. A system according to claim 11, further comprising: a manual terminal to which calls are transferred for which no acceptability signal is received.

13. A system according to claim 11, wherein the select format is selected from a plurality of formats based on dialed number identification signals automatically received from the communication facility.

14. A system according to claim 11, wherein the stored negative data includes a list of unacceptable numbers.

15. A system according to claim 14, wherein the responsive digital data includes identification data entered by the callers and the callers are further qualified based on the caller identification data.

16. A system according to claim 15, wherein the identification data includes social security number data for the callers.

17. A system according to claim 12, wherein an operator enters data at the manual terminal.

18. A system according to claim 12, further comprising: storing at least a portion of the data entered by the operator.

19. A system according to claim 16, wherein the associated telephone number signals are received automatically from the communication facility (ANI).

20. A method for determining the acceptability of calls and executing certain operations of telephonic formats in association with a communication facility including remote terminal apparatus for the individual callers, wherein said remote terminal apparatus includes a telephonic instrument

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with voice communication means and digital input means in the form of an array of alphabetic, numeric buttons for providing data, including the steps of:

receiving associated telephone number signals automatically provided by the communication facility upon the instance of a call from one of said remote terminal apparatus;

testing said associated telephone number signals with respect to stored data to determine the acceptability of said call from said one of said remote terminal apparatus; and

selectively providing one or more cues to said one of said remote terminal apparatus and providing at least one cue depending upon the associated telephone number signals for said call from said one of said remote terminal apparatus in accordance with a select format.

21. A method according to claim **20**, further comprising the step of:

testing said associated telephone number signals against stored negative telephone numbers that are unacceptable.

22. A method according to claim **20**, further comprising the step of:

transferring said call to a manual terminal based on a condition and displaying data relating to said caller.

23. A method according to claim **20**, wherein the select format is identified from one of a plurality of formats based on dialed number identification signals automatically provided by the communication facility.

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24. A method according to claim **20**, wherein at least one cue indicates on-going accounting data during said call.

25. A method according to claim **20**, further comprising the step of:

receiving digital data in accordance with the select format responsive to at least one cue.

26. A method according to claim **25**, further comprising the step of:

further testing and qualifying callers based on a one time use test.

27. A method according to claim **25**, wherein the callers are further qualified based on the associated telephone number signals or caller identification data entered as digital data responsive to the cue or both.

28. A method according to claim **27**, wherein the caller identification data is social security data.

29. A method according to claim **27**, further comprising the step of:

transferring said call to a manual terminal for direct communication.

30. A method according to claim **29**, wherein data for a caller is entered at the manual terminal.

31. A method according to claim **22**, wherein the displaying of the data relating to the caller is based on the associated telephone number signals relating to the call.

32. A method according to claim **22**, wherein the data relating to the caller includes caller entered data.

* * * * *

EXHIBIT 26

PART 1 OF 2

(12) **United States Patent**
Katz

(10) **Patent No.:** **US 6,678,360 B1**
 (45) **Date of Patent:** ***Jan. 13, 2004**

(54) **TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 294 days.

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This patent is subject to a terminal disclaimer.

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(List continued on next page.)

Related U.S. Application Data

(63) Continuation of application No. 09/006,274, filed on Jan. 13, 1998, now Pat. No. 6,148,065, which is a continuation of application No. 08/473,320, filed on Jun. 7, 1995, now Pat. No. 5,815,551, which is a continuation of application No. 07/335,923, filed on Apr. 10, 1989, now Pat. No. 6,016,344, which is a continuation of application No. 07/194,258, filed on May 16, 1988, now Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, filed on Feb. 24, 1987, now Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, filed on Jul. 10, 1985, now abandoned.

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(74) **Attorney, Agent, or Firm**—Reena Kuyper; B. G. Nilsson

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ABSTRACT

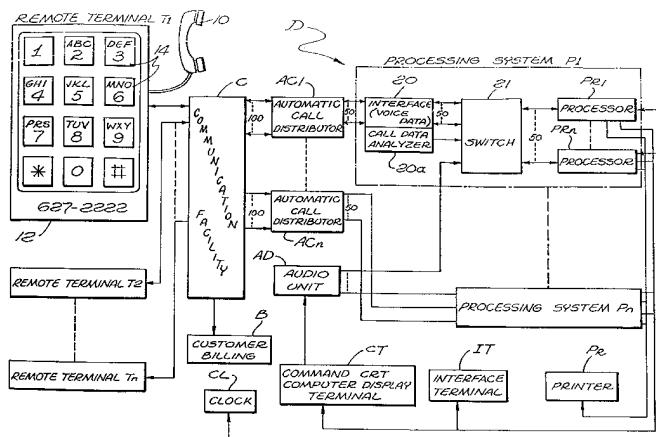
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A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement; sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

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124 Claims, 6 Drawing Sheets



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EXHIBIT 26

PART 2 OF 2

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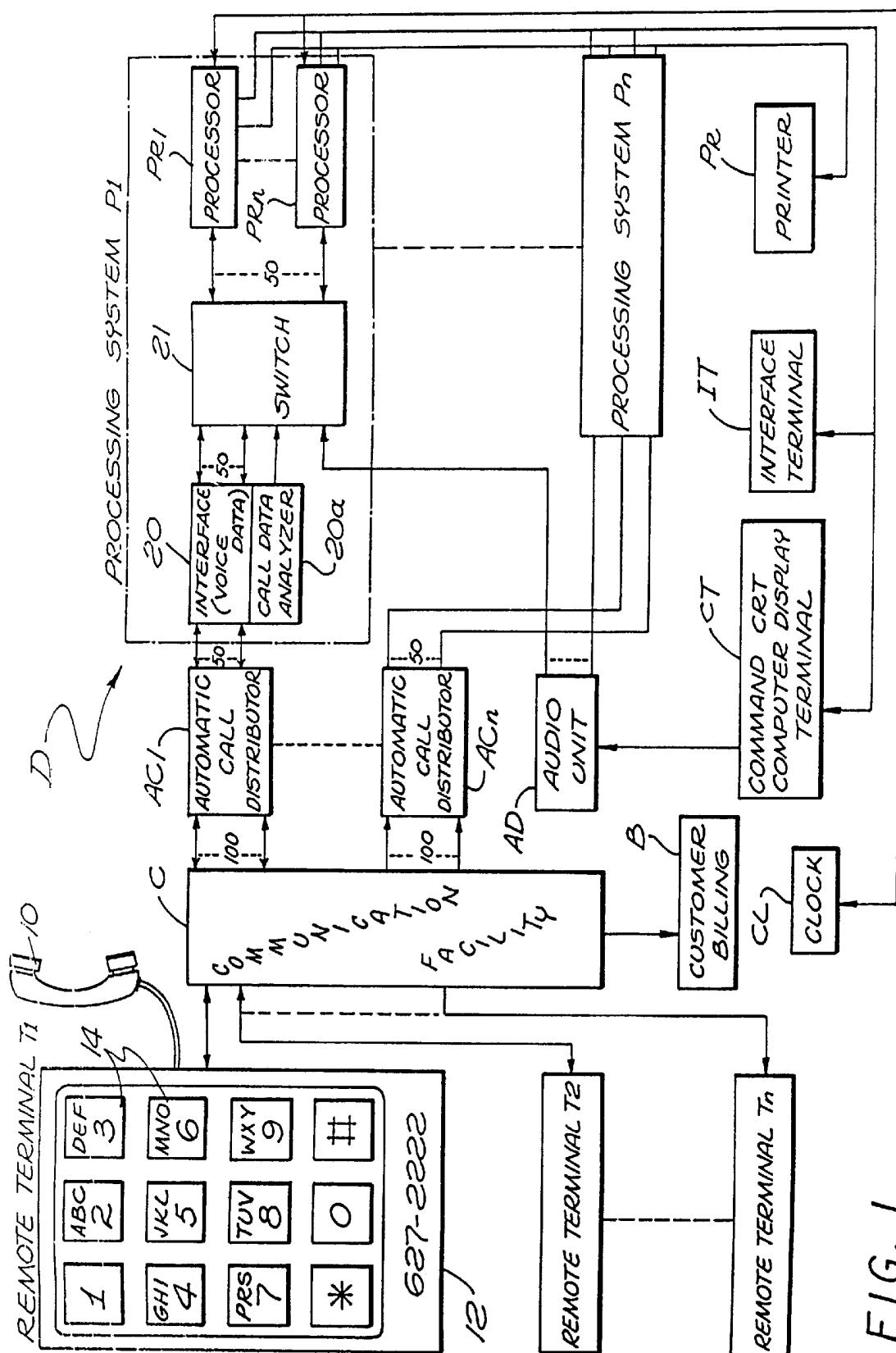


FIG. 1

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53	<i>C1</i>	58	62	64	66
<i>CALLER'S TELEPHONE NUMBER AND INITIALS</i>	<i>DATA</i>	<i>CALL RECORD SEQUENCE</i>	<i>ASSIGNED DESIGNATION</i>	<i>ACKNOWLEDGE DIGITS</i>	
627-2222-53	47	176-----77	4951	4951/684	6/73

FIG. 2

130	132	134	136	138	104	140	142	144
<i>CARD TYPE</i>	<i>CARD #</i>	<i>CARD</i>	<i>CUST. EXP. DATE</i>	<i>NAME ADDRESS DATA</i>	<i>ITEM 1</i>	<i>COLOR SIZE CODE</i>	<i>ACKNOWLEDGE DIGITS</i>	

FIG. 5

201	202	204	200	206	208	210
<i>CALLER'S TELEPHONE NUMBER</i>	<i>USES/ MONTH</i>	<i>TIME</i>	<i>I.D. DATA</i>	<i>DESIGNATION</i>	<i>QUESTION ANSWERS</i>	

FIG. 7

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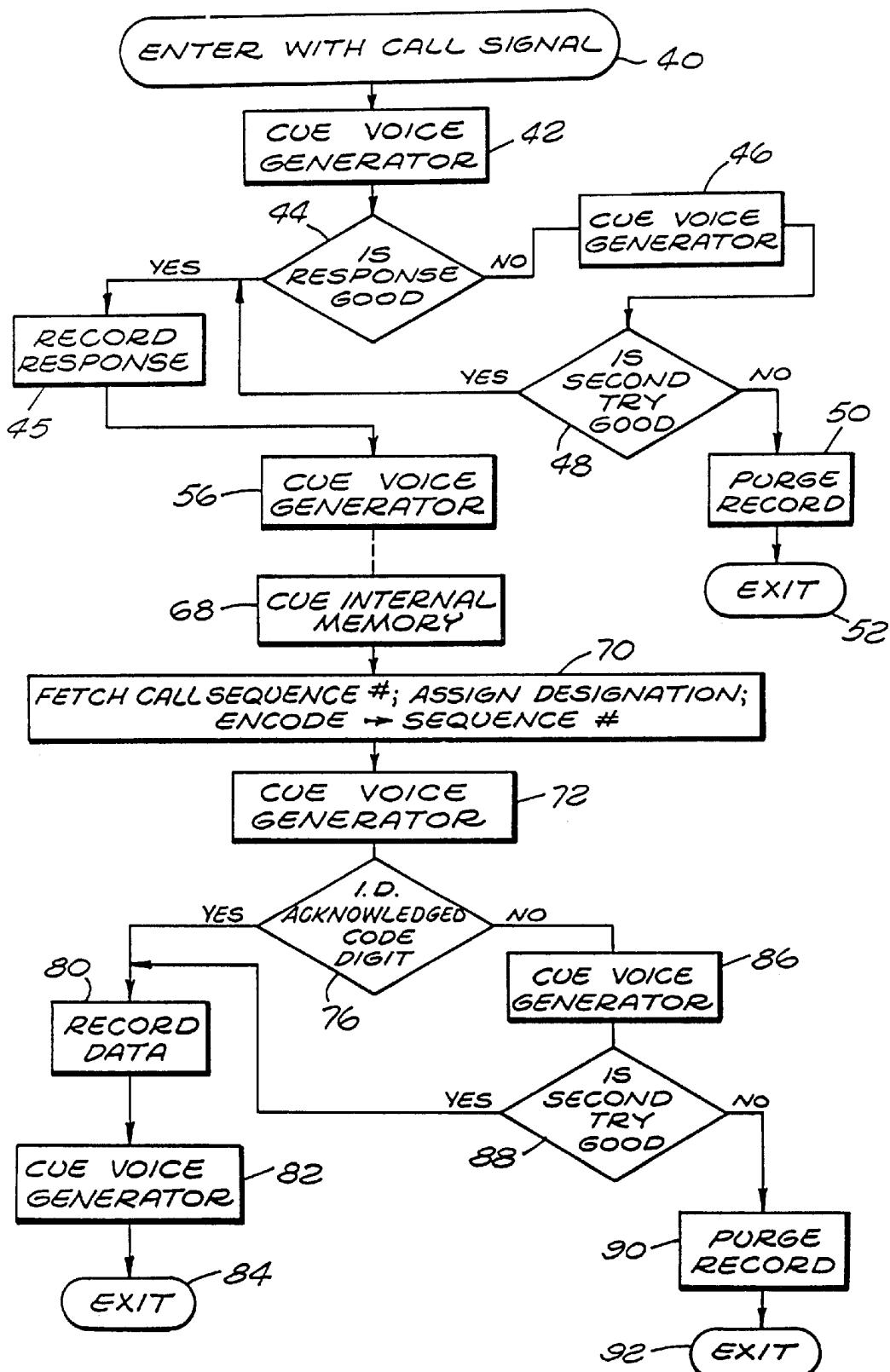


FIG. 3

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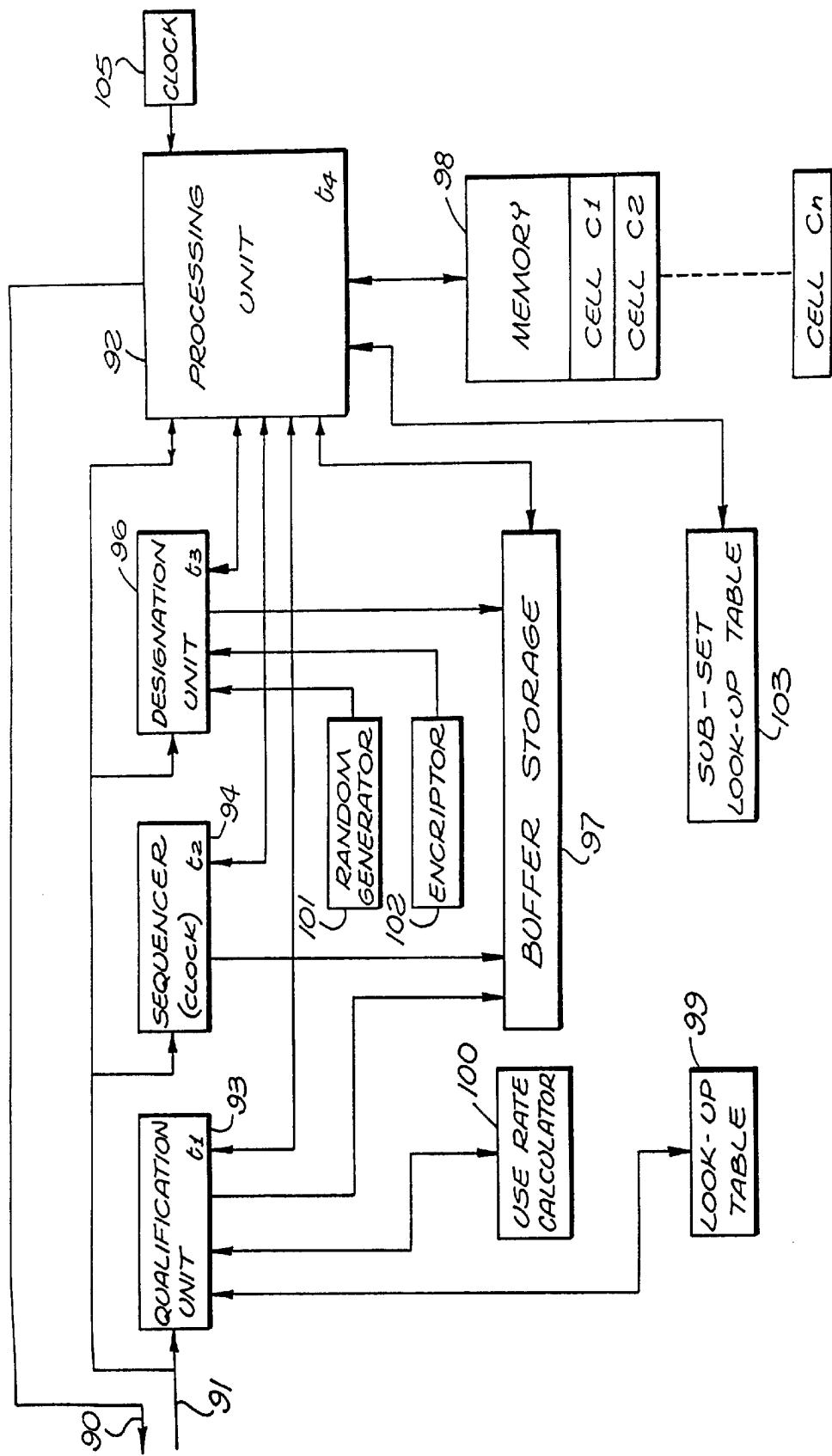


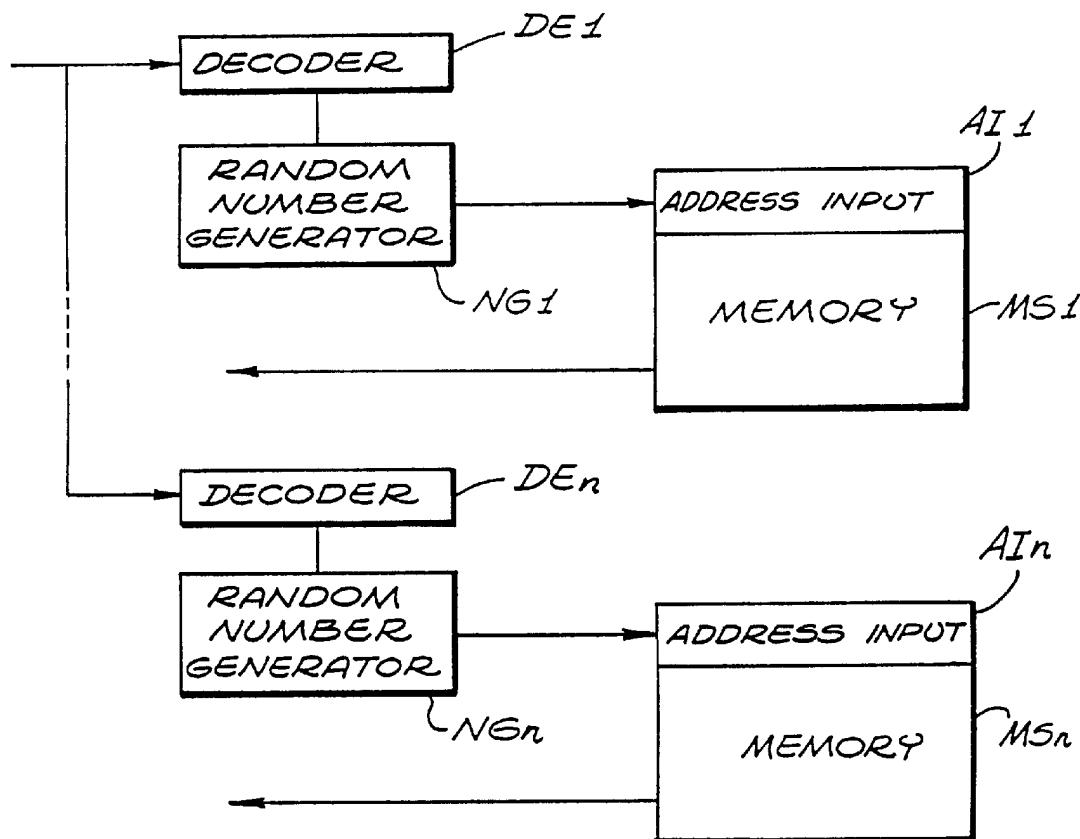
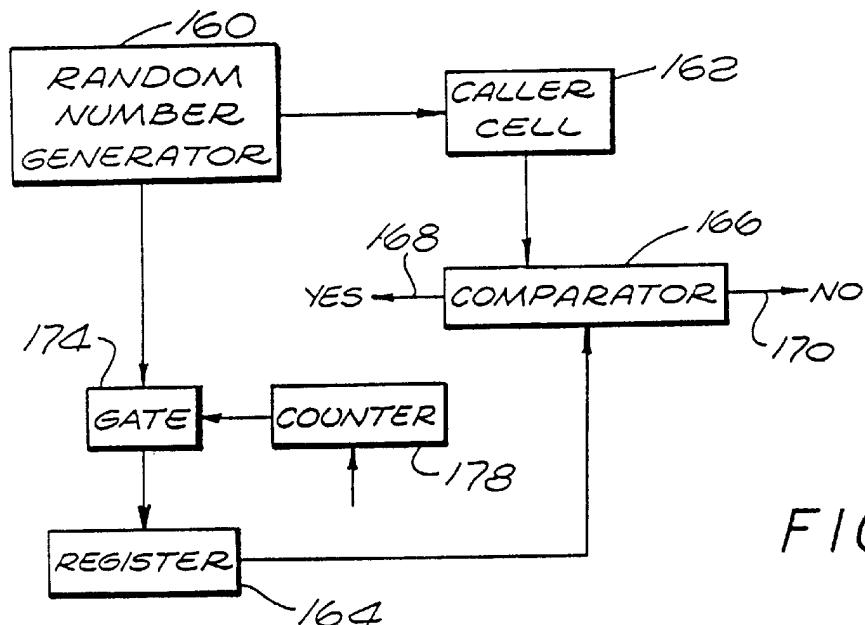
FIG. 4

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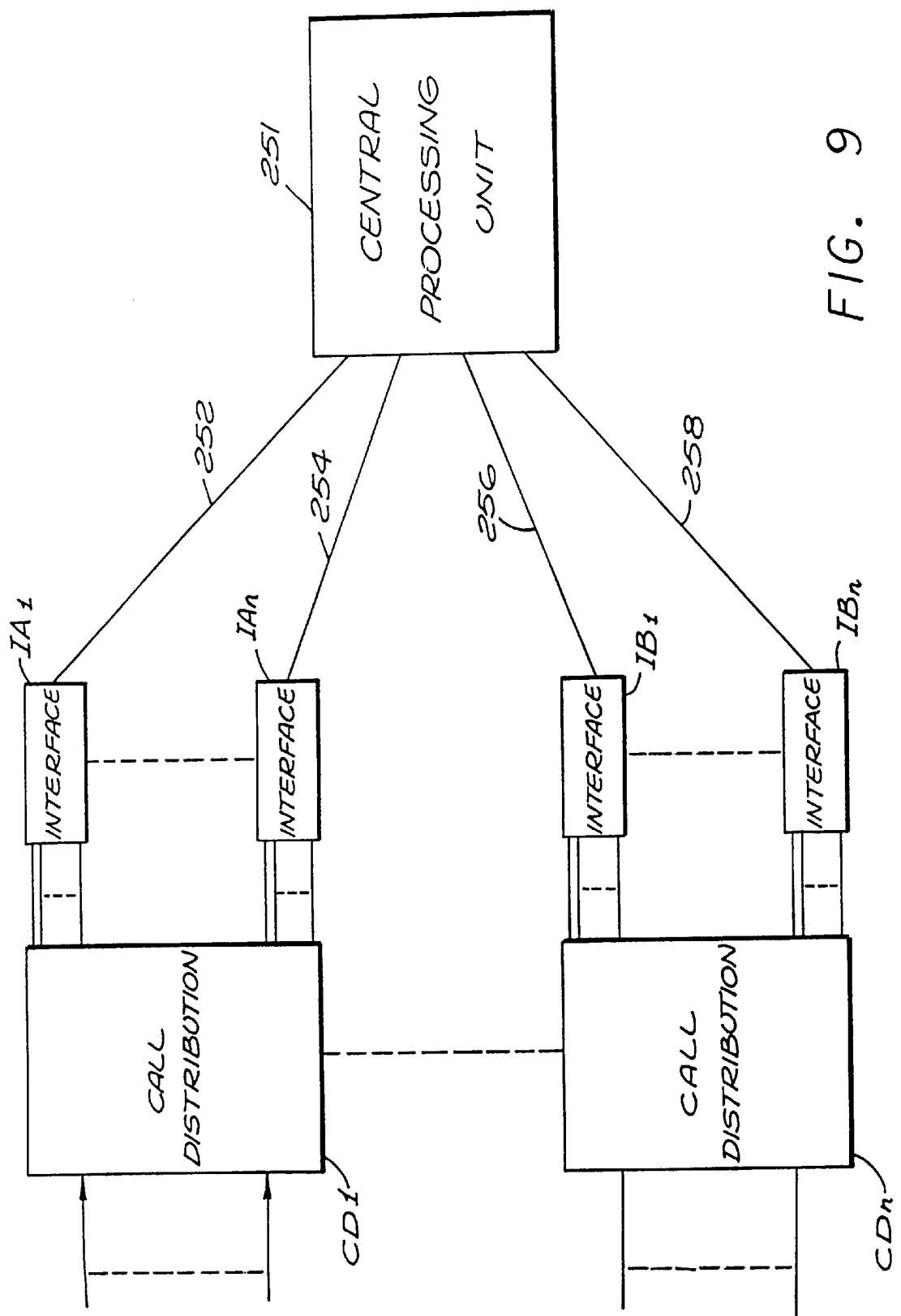


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TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM

This is a continuation application of application Ser. No. 09/006,274 filed Jan. 13, 1998 now U.S. Pat. No. 6,148,065, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation application of application Ser. No. 08/473,320 filed Jun. 7, 1995, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 5,815,551, which is a continuation application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 6,016,344, which is a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility," now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility," now abandoned.

BACKGROUND AND SUMMARY OF THE INVENTION

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the

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callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator. For example, as disclosed in detail below, the calling number (ANI) is provided by the communication facility, and may be registered to correlate data in relation to the callers.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers, who are accommodated individual communication through a telephone system.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as maybe developed in the system of FIG. 4;

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4; and

FIG. 9 is a block diagram of the connections between the CPU and remote stations.

DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical

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communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in

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accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum, 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number.

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ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface **20** and to provide control through the call data analyzer **20a**.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface **20** is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of, utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface **20** provides the connection of the fifty lines to a switch **21** which is in turn coupled to fifty function units, or processors PR₁-PR_n. As indicated above, multiple-function units, or processors, are described in the disclosed embodiment to facilitate the explanation of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR₁-PR_n includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR₁-PR_n are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR₁-PR_n are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data, (formatted at one of the telephone terminals T₁-T_n) is processed by one of the processors PR₁-PR_n. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T₁ for direct local communication between the caller and an operator at the terminal T₁. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips

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may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infirmity. The exemplary operation might involve a geographical area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals T₁-T_n to contact the central station D through the communication facility C and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor PR and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal T₁ (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece **10** and in accordance with conventional techniques actuates the push buttons **14** to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility C with a designated function unit in the central station D. Receiving the call signal, the automatic call distributor AC₁ associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface **20** and the switch **21** to attain connection with the specific processor, e.g. the processor PR₁ formatting the health-related program. Accordingly, the processor PR₁ cooperates with the interface **20** to cue the interface **20** to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block **40** which is accordingly followed by a "cue voice generator" command block **42**. If the ANI equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

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The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block **48** (FIG. 3). Specifically, block **48** poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block **50** and the call is terminated as indicated by the block **52**. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block **45**. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section **53**, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block **48** (FIG. 3), the response is recorded at that stage. In either case, exiting from the block **54** (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block **56**.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface **20** (FIG. 1) as represented by the block **56** produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name."

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks **42** through **54**. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section **53** of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section **58** in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

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During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections **62**, **64** and **66**. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

Adding without propagated carries:

$$\begin{array}{r} 4951 \\ 2222 \\ \hline 6173 \end{array}$$

Note that the confirmation data as acknowledgment digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section **62** while the acknowledge digits are 6173 as registered in the section **66**. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section **64**, the acknowledge code or digits., e.g. 6173, being registered in the section **66**. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block **68** (FIG. 3). Thus, the processor PR1 fetches the call record sequence, number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block **70** (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface **20**, as indicated by the block **72** (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface **20** (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block **76** (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block **80** and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block **82** (FIG. 3) to indicate the close of the

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communication and that the transaction is terminated as represented by the exit block **84**.

In the event that a caller cannot confirm his acknowledgement digits, as indicated by the block **76**, a repeat operation is performed as indicated respectively by the blocks **86** and **88**. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block **90** and an exit block **92**. If the second try is successful (test block **88**), as indicated by the block **80**, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR₁-PR_n (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer **22** to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P₁-P_n (FIG. 1) with test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For, example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors P₁-P_n can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR₁-PR_n. From the switch **21** (FIG. 1) a pair of communication lines **90** and **91** are indicated in FIG. 4 (top left). The line **90** provides signals from a processing unit **92** while the line **91** provides signals to the processing unit **92** along with other components as represented in FIG. 4. The separate lines **90** and **92** facilitate explanation.

The processing unit **92** may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit **92**, operating in a somewhat parallel configuration, or

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alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line **91** (upper left) is connected specifically to a qualification unit **93**, a sequencer **94** and a designation unit **96**, as well as the processing unit **92** as indicated above. The qualification unit qualifies access from a remote terminal T₁-T_n to the processing unit **92** as described in detail below. In accordance with various applications or operating formats, the qualification unit **93**, the sequencer **94** and the designation unit **96** operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit **92** and a buffer storage **97**. Essentially, the buffer storage **97** is illustrated separately from the processing unit **92** along with the unit **93**, sequencer **94**, unit **96**, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory **98** (with cells C₁-C_n), a look-up table **103** and a clock **105**.

Considering the processor of FIG. 4 in further detail, the qualification unit **93** (upper left) is connected to a look-up table **99** and a use-rate calculator **100**. The designation unit **96** (top center) is connected to a random number generator **101** and an encryptor **102**.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T₁ (FIG. 1) dials a specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal T₁. As a result, the communication facility C couples the terminal T₁ through the automatic call distributor AC₁, the interface **20** and the switch **21** to a select processor PR₁ identified and programmed for a mail-order operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P₁ through well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface **20** might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (*) at the terminal T₁. Such action forms an abort signal that is detected by the processing unit **92** to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer may be asked by the voice generator to provide (by voice) detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface **20** might actuate the terminal T₁ to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for"

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed

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initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card number and the expiration date of the card. That data is stored in the register 104, specifically in the blocks 132 and 134 as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block 136 of the block format register 104. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal IT (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register 104 along with his credit card number and expiration date. From that location, the data is checked by the qualification unit 93 (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated t1, the qualification unit 93 operating under control of the processing unit 92.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been canceled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit 93.

With the successful completion and verification of the preliminary data in the block format register 104, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer 94 may log the time during a period t2 if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface 20 prompts the caller through a series of exchanges that load the storage block format register 104 with a merchandise order. Thus, as purchase items are confirmed, the register 104 is loaded as exemplified by the blocks 140 and 142. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit 96 (FIG. 4) during the interval t3 to develop and announce the acknowledgment digits as stored in the block 144 (FIG. 5). The acknowledgment digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer 97 (FIG. 4) to a select memory cell C1-Cn.

During the next interval t4, the processing unit 92 (FIG. 4) isolates data of the cells C1-Cn to facilitate the mail-order process. In that regard, the processor 92 may incorporate structure and processing techniques as disclosed in the parent case.

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Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might, be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1 coupling would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently a valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator 100 to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval t2 and the operation of the sequencer 94 may be bypassed. Rather, the designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random gen-

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erator 101 with or without the encryptor 102 may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.—Birth Year—Designation—Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "not" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

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With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1-Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Essentially, the auctioneer is given an abstract or summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1-Tn may dial the auction number and obtain access to the processing systems P1-Pn. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations maybe performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility C and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

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Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars asking callers to so bid by entering an asterisk (*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92 of course, it is important to maintain a record of back-up bidders in the event the sale not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and

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designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93 and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on

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their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface 20. Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PR1 containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no such indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically

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in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of drivers license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically, identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller. Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input AI1-AIn respectively. Similarly, the address inputs AI1-AIn are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different

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numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface 20 FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input A11 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEn (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers.

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For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1-Pn as explained above. Note that the processor (or the interface 20 may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualification unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch 21 (FIG. 1) for communication to the caller.

With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

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To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses. 10

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IAn and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A method to be utilized with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising the steps of:

receiving incoming calls from callers;

receiving called terminal digital data (DNIS) signals automatically provided by said telephone facility relating to an incoming call to identify said select operating format from a plurality of distinct operating formats and for also receiving caller telephone number data from said telephone facility;

testing the caller telephone number data against negative file data to limit access to at least a portion of the select operating format;

providing an operator terminal for use by a person to facilitate caller communication via the person through the telephone facility;

connecting an incoming call by a caller to said operator terminal under control of the computer based on a condition, said caller telephone number data being

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stored in said memory such that said computer in accordance with said select operating format is capable of accessing said customer data on a selected customer which has a telephone number corresponding to said caller telephone number data automatically provided from said telephone facility; said computer visually displaying said customer data on a selected customer and said operator terminal capable of providing data entries to said memory; and

updating said customer data on a selected customer contained in the memory by incorporating said data entries into said customer data.

2. A method according to claim 1, further comprising the step of:

prompting callers to enter digital data.

3. A method according to claim 1, further comprising the step of:

testing said customer data under control of the computer.

4. A method according to claim 3, wherein the testing step further comprises the step of testing a caller provided PIN number.

5. A method according to claim 1, wherein the data entries provided by the operator relate to a caller.

6. A method according to claim 1, further comprising the step of:

providing said operator terminal with a display of data relating to said select operating format under control of said called terminal digital data (DNIS) signals.

7. A method according to claim 1, wherein said customer data on said selected customer includes data specifying a limit on use.

8. A method according to claim 7, wherein said limit on use specifies a predetermined number of uses.

9. A method according to claim 7, wherein said limit on use specifies a one time only use.

10. A method according to claim 7, wherein said limit on use specifies a use relating to a dollar amount.

11. A method according to claim 7, wherein said customer data on a selected customer includes data based on a specified limit on a number of calls from said caller during specified multiple intervals of time wherein said specified limit is automatically refreshed at the beginning or the end of each of said multiple intervals of time.

12. A method according to claim 7, wherein said limit on use specifies an extent of access.

13. A method for use with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising the steps of:

receiving incoming calls from callers;

receiving called terminal digital data (DNIS) signals associated with an incoming call automatically provided by the telephone facility to identify the select operating format from a plurality of distinct operating formats;

providing an operator terminal for use by a person to enable a caller to communicate via the operator through the telephone facility; and

receiving customer number data entered by a caller and storing the customer number data in a memory and further based on a condition coupling an incoming call to the operator terminal;

visually displaying the customer number data at the operator terminal; and

updating data relating to the caller in the memory by incorporating other data entries provided at the operator terminal.

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14. A method according to claim **13**, further comprising the step of:

under control of the select operating format, developing computer generated number data for at least certain of the customers.

15. A method according to claim **14**, further comprising the step of:

providing said computer generated number data via voice signals to at least certain of the customers.

16. A method according to claim **14**, further comprising the step of:

issuing said computer generated number data in sequential order to at least certain of the customers.

17. A method according to claim **15**, further comprising the step of:

utilizing said computer generated number data to identify transactions for at least certain customers and for storing said computer generated number data in said memory.

18. A method according to claim **14**, further comprising the step of:

receiving caller telephone number data automatically provided by the telephone facility for each customer and utilizing said caller telephone number data to control certain operations of the select operating format.

19. A method according to claim **15**, further comprising the step of:

imposing a limit on use with respect to at least certain operations of the select operating format for at least certain of the customers.

20. A method according to claim **19**, wherein the limit on use imposed on at least certain customers relates to a dollar amount.

21. A method according to claim **19**, wherein the limit on use imposes a one time only use on at least certain customers.

22. A method according to claim **19**, wherein the limit on use imposes a predetermined number of uses on at least certain customers.

23. A method according to claim **19**, further comprising the step of:

further testing said limit on use with respect to at least certain customers based on a predetermined period of time.

24. A method according to claim **18**, further comprising the step of:

imposing a limit with respect to at least certain customers based on a predetermined period of time.

25. A method according to claim **13**, further comprising the step of:

testing said customer number data against negative data.

26. A method according to claim **25**, further comprising the step of:

generating computer number data and providing the computer number data to at least certain of the customers via voice signals.

27. A method according to claim **26**, wherein the computer generated number data is provided to at least certain customers in sequential order.

28. A method according to claim **25**, further comprising the step of:

utilizing the computer generated number data to identify transactions with respect to at least certain customers; and

storing the computer generated number data in the memory.

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29. A method according to claim **25**, further comprising the step of:

imposing a limit on use with respect to at least certain operations of the select data operating format for at least certain customers.

30. A method according to claim **29**, wherein the limit on use imposed on at least certain customers relates to a dollar amount.

31. A method according to claim **29**, wherein the limit on use imposed on at least certain customers specifies a predetermined number of uses.

32. A method according to claim **29**, wherein the limit on use imposed on at least certain customers specifies a one time only use.

33. A method according to claim **25**, further comprising the step of:

selectively providing different cues to customers based on customer identification data.

34. A method according to claim **25**, further comprising the step of:

receiving customer telephone number data automatically provided by the telephone facility; and utilizing the customer telephone number data to control certain operations of the select operating format.

35. A method according to claim **34**, further comprising the step of:

storing the customer telephone number data.

36. A method according to claim **13**, further comprising the step of:

further testing the customer number data for at least certain callers to determine if the customer number data is of record.

37. A method according to claim **13**, further comprising the step of:

further testing the customer number data to determine if the customer number data has exceeded a limit on use imposed on at least certain callers.

38. A method according to claim **37**, wherein the limit on use relates to a dollar amount.

39. A method according to claim **37**, wherein the limit on use imposed on at least certain callers specifies a one time only use.

40. A method according to claim **37**, wherein the limit on use imposed on at least callers specifies a predetermined number of uses.

41. A method according to claim **37**, wherein the limit on use is imposed on at least certain callers during a predetermined period of time.

42. A method according to claim **37**, further comprising the step of:

further testing the customer number data against a file of negative data.

43. A method according to claim **13**, further comprising the step of:

providing computer generated number data to at least certain of said callers via voice signals.

44. A method according to claim **43**, storing the computer generated number data in association with the customer number data.

45. A method according to claim **37**, further comprising the step of:

selectively providing different cues to at least certain callers to prompt responses based on customer identification data.

46. A method according to claim **13**, further comprising the step of:

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selectively receiving calling number identification data and utilizing the calling number identification data to test for fraud against a database of calling number identification data.

47. A system according to claim **13**, wherein the number data relating to a customer includes expiration date data.

48. A system for use with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising the steps of:

means for receiving called terminal digital data (DNIS) signals associated with an incoming call automatically provided by the telephone facility to identify the select operating format from a plurality of distinct operating formats;

an operator terminal for use by a person to enable a customer to communicate via the operator through the telephone facility; and

interface switching means connected to the receiving means and the operator terminal for receiving incoming calls;

processing means connected to the interface switching means for receiving number data relating to a customer and storing the number data in a memory, said processing means under control of the select operating format, further using the number data to selectively determine at least one appropriate cue to avoid repetition of a cue for every different one of at least certain customers to prompt appropriate responses from the customers, in addition, said processing means capable of coupling an incoming call to the operator terminal based on a condition, and providing a visual display of at least a portion of the number data relating to a customer at the operator terminal to allow other data entries to the memory from the operator terminal to update data relating to the caller stored in the memory.

49. A system according to claim **48**, further comprising: qualification structure for testing the customer number data to determine if the customer number data has exceeded a limit on use imposed with respect to at least certain callers.

50. A system according to claim **49**, wherein the limit on use relates to a dollar amount.

51. A system according to claim **49**, wherein the limit on use imposed on at least certain callers specifies a one time only use.

52. A system according to claim **49**, wherein the limit on use imposed on at least certain callers specifies a predetermined number of uses.

53. A system according to claim **49**, wherein the limit on use is imposed on at least certain callers during a predetermined period of time.

54. A system according to claim **48**, wherein the means for receiving also receives calling number identification data for each customer as part of the number data and wherein the calling number identification data is utilized to control certain operations of the select operating format.

55. A system according to claim **54**, wherein the calling number identification data is stored in the memory.

56. A system according to claim **48**, wherein the qualification structure also tests the number data to determine if it is of record.

57. A system according to claim **56**, wherein the qualification structure further tests the number data against negative file data.

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58. A system according to claim **48**, wherein the processing means determines and provides an appropriate cue to avoid duplicating a cue.

59. A system according to claim **48**, wherein the number data relating to a customer includes expiration date data.

60. A system for use with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising:

means for receiving called terminal digital data (DNIS) signals associated with an incoming call automatically provided by the telephone facility to identify the select operating format from a plurality of distinct operating formats;

an operator terminal for use by a person to enable a caller to communicate through the telephone facility; interface switching means connected to the receiving means and the operator terminal for receiving incoming calls;

a voice generator for providing callers with voice prompts to enter responsive data;

qualification structure connected to the interface switching means for testing the customer number data to determine if the customer number data is of prior record to limit on prevent access to at least certain operations of the select operating format; and

processing means connected to the interface switching means for receiving customer number data entered by a caller and storing the customer number data in a memory for subsequent display and further based on a condition coupling an incoming call to the operator terminal, said processing means providing a visual display of at least a part of the customer number data at the operator terminal and updating the memory by incorporating other data entries provided at the operator terminal.

61. A system according to claim **60**, wherein the qualification structure further tests the customer number data against negative file data.

62. A system according to claim **60**, further comprising: a computer number generator for generating computer number data for at least certain callers and providing the computer number data to at least certain callers via the voice generator.

63. A system according to claim **62**, wherein the qualification structure tests a limit on use imposed with respect to at least certain operations of the select operating format for at least, certain callers.

64. A system according to claim **63**, wherein the limit on use imposed on at least certain callers specifies a one time only use for at least certain callers.

65. A system according to claim **63**, wherein the limit on use imposed on at least certain callers relates to a dollar amount.

66. A system according to claim **63**, wherein the limit on use imposed on at least certain callers relates to a predetermined number of uses.

67. A system according to claim **63**, wherein the limit on use is imposed on at least certain callers during a predetermined period of time.

68. A system according to claim **60**, further comprising: a computer number generator for generating computer number data to identify transactions for at least certain callers, said computer number data stored in the memory to subsequently identify the transactions.

69. A system according to claim **67**, wherein the computer number data is provided to at least certain callers via a voice generator.

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70. A system according to **60**, wherein the processing means selectively provides different cues to avoid repetition of cues to at least certain callers as determined by the customer number data.

71. A system according to claim **60**, wherein calling number identification data automatically provided by the telephone facility for at least certain callers serves as their customer number data.

72. A system according to claim **60** wherein the means for receiving further receives calling number identification signals automatically provided by the telephone facility.

73. A system according to claim **72**, wherein the qualification structure further tests the calling number identification signals against a database of calling number identification data to determine fraudulent use.

74. A system according to claim **72**, wherein the customer number data includes expiration date data.

75. A method to be utilized with a telephone facility for on-line handling of caller data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising the steps of:

receiving incoming calls from callers;

receiving caller telephone number data automatically provided by the telephone facility;

testing the caller telephone number data against negative file data in accordance with a negative test to limit access to at least a portion of the select operating format by the callers;

receiving caller identification data entered by the callers; testing the caller identification data against a file of stored caller identification data in accordance with a positive test;

providing an operator terminal for use by a person to facilitate caller communication via the person through the telephone facility;

connecting an incoming call by a caller to said operator terminal under control of the computer based on a condition where the caller does not satisfy the positive test against stored caller identification data, said computer visually displaying said identification data on a selected caller and said operator terminal capable of providing data entries to said memory; and

updating said caller data on a selected caller contained in the memory by incorporating said data entries into said caller data.

76. A method according to claim **75**, wherein the caller identification data is customer data.

77. A method according to claim **75**, further comprising the step of:

testing said caller data under control of the computer.

78. A method according to claim **77**, wherein the caller identification data is a caller personal identification number number.

79. A method according to claim **75**, wherein the data entries provided by the operator terminal relate to a caller.

80. A method according to claim **75**, wherein said caller data on said selected caller includes data specifying a limit on use.

81. A method according to claim **80**, wherein said limit on use specifies a predetermined number of uses.

82. A method according to claim **80**, wherein said limit on use specifies a one time only use.

83. A method according to claim **80**, wherein said limit on use specifies a use relating to a dollar amount.

84. A method according to claim **80**, wherein said caller data on a selected caller includes data based on a specified

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limit on a number of calls from said caller during specified multiple intervals of time wherein said specified limit is automatically refreshed at the beginning or the end of each of said multiple intervals of time.

85. A method according to claim **80**, wherein said limit on use specifies an extent of access.

86. A method for use with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format and under control of a computer associated with the memory, comprising the steps of:

receiving incoming calls from callers;

providing an operator terminal for use by a person to enable a caller to communicate via the operator through the telephone facility;

receiving customer number data entered by a caller in addition to one other form of identification for the caller and storing at least the customer number data in a memory and further based on a condition coupling an incoming call to the operator terminal;

visually displaying at least a portion of the customer number data at the operator terminal; and

updating data relating to the caller in the memory by incorporating other data entries provided at the operator terminal.

87. A method according to claim **86**, further comprising the step of:

under control of the select operating format, developing computer generated number data for at least certain of the customers.

88. A method according to claim **87**, further comprising the step of:

providing said computer generated number data via voice signals to at least certain of the customers.

89. A method according to claim **87**, further comprising the step of:

issuing said computer generated number data in sequential order to at least certain of the customers.

90. A method according to claim **88**, further comprising the step of:

utilizing said computer generated number data to identify transactions for at least certain customers and for storing said computer generated number data in said memory.

91. A method according to claim **87**, further comprising the step of:

receiving caller telephone number data automatically provided by the telephone facility for each customer and utilizing said caller telephone number data to control certain operations of the select operating format.

92. A method according to claim **88**, further comprising the step of:

imposing a limit on use with respect to at least certain operations of the select operating format for at least certain of the customers.

93. A method according to claim **92**, wherein the limit on use imposed on at least certain customers relates to a dollar amount.

94. A method according to claim **92**, wherein the limit on use imposes a one time only use on at least certain customers.

95. A method according to claim **92**, wherein the limit on use imposes a predetermined number of uses on at least certain customers.

96. A method according to claim **92**, further comprising the step of:

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further testing said limit on use with respect to at least certain customers based on a predetermined period of time.

97. A method according to claim **91**, further comprising the step of:

imposing a limit with respect to at least certain customers based on a predetermined period of time.

98. A method according to claim **86**, further comprising the step of:

testing said customer number data against a file including a file of negative file data.

99. A method according to claim **98**, further comprising the step of:

generating computer number data and providing the computer number data to at least certain of the customers via voice signals.

100. A method according to claim **99**, wherein the computer generated number data is provided to at least certain customers in sequential order.

101. A method according to claim **98**, further comprising the step of:

utilizing the computer generated number data to identify transactions with respect to at least certain customers; and

storing the computer generated number data in the memory.

102. A method according to claim **98**, further comprising the step of:

imposing a limit on use with respect to at least certain operations of the select data operating format for at least certain customers.

103. A method according to claim **102**, wherein the limit on use imposed on at least certain customers relates to a dollar amount.

104. A method according to claim **102**, wherein the limit on use imposed on at least certain customers specifies a predetermined number of uses.

105. A method according to claim **102**, wherein the limit on use imposed on at least certain customers specifies a one time only use.

106. A method according to claim **98**, further comprising the step of:

selectively providing different cues in accordance with said select operating format to customers based on customer identification data.

107. A method according to claim **106**, wherein the customers are provided at least one further cue.

108. A method according to claim **98**, further comprising the step of:

receiving customer telephone number data automatically provided by the telephone facility; and

utilizing the customer telephone number data to control certain operations of the select operating format.

109. A method according to claim **108**, further comprising the step of:

storing the customer telephone number data.

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110. A method according to claim **86**, further comprising the step of:

further testing the customer number data for at least certain callers to determine if the customer number data is of record.

111. A method according to claim **86**, further comprising the step of:

further testing the customer number data to determine if the customer number data has exceeded a limit on use imposed on at least certain callers.

112. A method according to claim **111**, wherein the limit on use relates to a dollar amount.

113. A method according to claim **111**, wherein the limit on use imposed on at least certain callers specifies a one time only use.

114. A method according to claim **111**, wherein the limit on use imposed on at least callers specifies a predetermined number of uses.

115. A method according to claim **111**, wherein the limit on use is imposed on at least certain callers during a predetermined period of time.

116. A method according to claim **111**, further comprising the step of:

further testing the customer number data against a file including a file of negative file data.

117. A method according to claim **86**, further comprising the step of:

providing computer generated number data to at least certain of said callers via voice signals.

118. A method according to claim **117**, storing the computer generated number data in association with the customer number data.

119. A method according to claim **111**, further comprising the step of:

selectively providing different cues in accordance with said select operating format to at least certain callers to prompt responses based on customer identification data.

120. A method according to claim **119**, further comprising the step of:

providing at least one other cue.

121. A method according to claim **86**, wherein the customer number data is customer social security data.

122. A method according to claim **86**, wherein the one other form of identification for the caller is social security data.

123. A method according to claim **86**, further comprising the step of:

selectively receiving calling number identification data and utilizing the calling number identification data to test for fraud against a database of calling number identification data.

124. A system according to claim **86**, wherein the number data relating to a customer includes expiration date data.

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